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**A THREE-STEP METHOD FOR
THE DIAGNOSIS OF SOLITARY
PULMONARY NODULES***

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ABOUT 25%¹ to 50%³ of patients with primary bronchial cancer are estimated to be seen by the physician when the lesion is still manifest as a solitary pulmonary nodule. Prompt removal or eradication at this stage is advisable. But thoracotomy and biopsy of benign nodules carries a small mortality and a significant morbidity. It would therefore be desirable to utilize less hazardous methods of diagnosis. This paper is a report on what we believe to be such a method.

PATHOLOGY

The diseases and anomalies which result in the production of a solitary pulmonary nodule are legion. The differential roentgen diagnosis requires consideration of:

1. Inflammatory lesions (pneumonia, abscess, granuloma, etc.).
2. Benign pulmonary tumour and cyst (hamartoma, etc.).
3. Malignant pulmonary tumour (primary and metastatic).
4. Mediastinal tumour projecting into the lung field (neuroma, teratoma, etc.).
5. Pleural tumour (mesothelioma, fibroma).
6. Vascular lesion (arteriovenous fistula, infarct, aneurysm, sequestration, anomaly).
7. Miscellaneous lesion (pneumoconiotic nodule, localized fibrosis, etc.).

The inflammatory granulomas, benign tumours and miscellaneous vascular lesions may be grouped for purposes of the present discussion as "benign" nodules. The malignant neoplasms may be grouped as "malignant" nodules. In a review of some 2000 cases, both collected and personal, and mostly surgical in origin, we have found the following recorded pathological distribution: granuloma (including focal pneumonitis), 44%; benign lesion (tumour, cyst, etc.), 24%; malignant lesion, primary, 26%; malignant lesion, metastatic, 6%.

Holin and associates² found in a mass survey in Cleveland that about 3% of solitary pulmonary nodules proved to be malignant; Taylor *et al.*⁴ in a

*Presented at the 93rd Annual Meeting of the Canadian Medical Association, Banff, June 15, 1960.

TABLE I.—SOLITARY PULMONARY NODULES—
PER CENT MALIGNANT

Author and date	Number and source of cases	Per cent malignant
Holin <i>et al.</i> , <i>Pub. Health Rep.</i> , 1956	666 (Cleveland survey)	3
Garland, <i>Chicago M. School Bull.</i> , 1958	1956 (personal and collected)	26 (range 16 - 37)
Taylor <i>et al.</i> , <i>Ann. Surg.</i> , 1958	236 (Fitz, A. H.)	9.7

large general hospital found that about 10% were malignant: in many surgical series about 25% were malignant. The proportion will therefore vary with the nature of the sample studied, and will of course increase with age.

DEFINITION

The solitary pulmonary nodule may be defined as one:

- lying within the pulmonary parenchyma,
- apparently solitary on conventional roentgenography.
- circular or ovoid in shape, and
- less than about 6 cm. in diameter.

METHOD

The method which we employ is termed a three-step method. It consists essentially in thorough *radiological* examination at the patient's first visit, brief *clinical* examination, and pertinent *laboratory* examination. Since most of these nodules are discovered as silent roentgen shadows, it is stressed that the first step is the attempted completion of definitive or thorough radiological examination; the next is evaluation of the anamnesis; and the last (and sometimes elective) step, clinical laboratory study.

I. Radiological Procedure and Criteria

Complete the roentgen examination by stereoscopic posteroanterior, or oblique, or lateral projections, depending on the location of the opacity. Use posterior lordotic views, heavy density views, tomograms or fluoroscopy as indicated. Fluoroscopy will permit rapid detection of variations in size of vascular nodules such as arteriovenous fistulas. Heavy density views and tomograms will aid in the detection of calcium (and its location as being central or peripheral) and of cavitation. Fluoroscopy has the advantage of requiring the radiologist to see the patient in person, permitting him to obtain a brief initial history including determination of such key points as symptoms, previous chest roentgenographic examinations, recent surgery, etc., and, most important, of reassuring those who become apprehensive by virtue of the unusually thorough examination.

The nodule is analysed particularly from the following points of view:

Is the opacity a true solitary nodule as defined?

Are its margins sharp, fuzzy or otherwise?

Is it adjoined by fine strands (linear opacities) or satellite nodules?

Is there calcium within it or at its margin? Is it cavitated?

Has it changed in size from previous chest films?

The majority of benign lesions as above defined have relatively sharp borders; the majority of primary malignant tumours have indefinite, irregular or fuzzy borders. However, it should be noted that a primary bronchial carcinoma *may* have a very sharp border, especially when smaller than 1 cm. in diameter, and that therefore this one feature alone is not decisive.

Small linear densities connecting the nodular opacity with the pleura or with the hilum are more common in inflammatory than neoplastic disease; satellite nodules may be present with both primary carcinomas or granulomas.

Centrally located calcium is almost pathognomonic of a solitary benign lesion (granuloma, hamartoma, etc.). However, marginally located calcium is not decisive. Primary carcinomas may arise behind a small calcific residue of former infection. These remarks pertain to calcium as seen in roentgenograms of living patients, not in excised surgical or postmortem specimens.

Cavitation, when associated with a thick or irregular wall, is suggestive of neoplasm. Change in size or shape of the nodule from that present in previous roentgenograms may occur with both benign and malignant nodules. Absence of change over a long period (say over two years) favours benignity. Increase in size over a short period (say three months), especially if the patient is more than 45 years of age, favours malignancy. While many bronchial cancers may have a long pre-invasive or localized microscopic phase, most (about 80% in our experience) are not visible in a standard roentgenogram made one year before their first discovery.

II. Clinical Criteria

The four important points are the age, sex, presence or absence of thoracic symptoms, and history of recent thoracic tap or surgery. The frequency of primary bronchial carcinoma increases significantly after age 45. It is about five times as frequent in males as in females. In our experience respiratory symptoms have been more commonly associated with an inflammatory lesion than with a primary malignant lesion. Therefore, absence of symptoms favours the possibility of neoplasm. Recent surgery should be noted inasmuch as small intrapulmonary hematomas may follow needling or other procedure and may resemble solitary nodules for some months. Use of oily nose drops should be ascertained, since lipid pneumonia may present as a solitary nodule.

III. Laboratory Data

Laboratory examinations such as skin tests and sputum studies are of limited value in the identification of solitary nodules. However, in persons under 40 years of age, they have proved very useful at times. The group we have attempted to utilize or recommend are as follows: skin or complement-fixation tests for tuberculosis, coccidioidomycosis and histoplasmosis; sputum examination for tubercle bacilli and tumour cells. For example, in a male aged 23 with a circumscribed nodule in the middle third of the left lung, the skin test for coccidioidomycosis was strongly positive, and for tuberculosis and histoplasmosis was negative; he had recent domicile in the southwest; his lesion had not been present in a film made one year previously. He was diagnosed as having coccidioma, treated accordingly, and cured.

Sputum or bronchial wash cytological study is rarely positive, except in very large neoplastic nodules.

Three-Step Chart

It has been found useful in practice to complete a "solitary pulmonary nodule chart" in each case under study, because this forces the busy radiologist to record the available pertinent data and to seek the remainder. When the patient is a male of 60 with a roentgen shadow strongly suggestive of neoplasm according to the above criteria, time should not be wasted on laboratory tests. On the other hand, when the patient is a female aged 30, it is permissible to utilize a few days seeking data which may obviate a needless and hazardous surgical procedure.

THREE-STEP CHART: SOLITARY PULMONARY NODULE CHART

Name:	X.R. No.	Date:
1. Radiographic data	Margin Strands Calcium Previous films	
2. Clinical data	Age Sex Symptoms Thoracic surgery	
3. Laboratory data	Tuberculin skin test Coccidioidin skin test Histoplasmin skin test Sputum examination	
Conclusion:		

Of the various factors involved, age is undoubtedly one of the more important, sex and symptoms are quite important, and presence or absence of the opacity in previously taken roentgenograms is of great importance. With experience, the x-ray appearance of the lesion has been of decisive value in many cases, but not in all. As in every other diagnostic procedure, deductions must be made with reasonable judgment. Attempts to complete preliminary diagnosis on the basis of a single film are to be deplored.

RESULTS

Utilizing the three-step method, it was possible to classify as presumptively "benign" or "malignant" 106 of 115 consecutive pulmonary nodule lesions. In 9 we were unable to reach a definite conclusion. In the formative period of the study, all cases were operated upon. In the last few years several have been treated by conservative means. Validation of the lesion is therefore established on clinical or associated grounds in some 10 cases.

Of the 68 nodules diagnosed as benign 66 were so verified; in 2 a mistake was made — the nodules proved to be primary malignant tumours.

Of 38 cases diagnosed malignant, 34 were so verified and 4 proved to be benign lesions (one benign tumour, three granulomas).

Of the nine unclassified nodules, five proved to be malignant tumours, and four benign lesions (three granulomas and one benign tumour).

TABLE II.—RESULTS OF THREE-STEP METHOD IN 115 CONSECUTIVE CASES

	Diagnosis by 3-step method	Diagnosis confirmed	Error
Benign.....	68	66	2
Malignant.....	38	34	4
Unclassified.....	9

(Diagnostic conclusion reached in 106 of 115 cases; diagnosis correct in 100 cases, or 86%.)

In the entire group of 115 solitary nodules, 74 were benign lesions, and 66 of them were correctly classified by the three-step method (89%). Malignant lesions numbered 41, and 34 of these were so diagnosed (83%).

The benign lesions included the following:

Granuloma, tuberculous or unclassified.....	51
Granuloma due to coccidioidomycosis.....	7
Granuloma due to histoplasmosis.....	3
Infection with abscess.....	3
Benign tumours: hamartoma.....	5
adenoma.....	1
neurofibroma.....	1
angioma.....	1
Bronchogenic cyst.....	2

The malignant lesions included 2 solitary metastatic lesions and 39 primary bronchial carcinomas.

It is to be noted that the identification of the majority of these nodules was surgical, since in the earlier period we did not have sufficient experience with, or confidence in, the method to urge less radical confirmation. However, in the last three years the experience has been such that several lesions identified as benign have been treated by the attending physician as such and their course proved confirmatory.

SUMMARY

A three-step method is described for the preoperative or non-surgical diagnosis of solitary pulmonary nodules.

Using this method in a series of 115 consecutive patients with such nodules, it proved possible to differentiate benign from malignant lesions in almost 90% of cases.

The method is regarded as a useful one for expediting sound surgical intervention in cases diagnosed as malignant, and obviating needless thoracotomy in cases diagnosed as benign. No method, including histological

examination, is entirely devoid of error, and therefore this three-step method should be used with sensible discretion in the important problem at hand.

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DISINFECTION OF NURSERIES CONTAMINATED WITH STAPHYLOCOCCI*

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IN SPITE of the fact that most hospitals have become alert to the problem of staphylococcal infections, no institution can claim to have solved it completely. The potential danger of severe epidemics remains, and it is only with the utmost care that the serious situation can be avoided. Staphylococcal infections cannot be prevented entirely but they can be held to a minimum.

To those who are concerned with the problem it is becoming increasingly obvious that good housekeeping forms one of the most important parts of any infection control program. Although satisfactory disinfection techniques may be evolved in the laboratory, their practical application is the responsibility of the housekeeping staff. In this hospital the Department of Bacteriology has been fortunate in having the co-operation of an able administrative housekeeper† whose personal interest and efficiency have contributed greatly to the activity of the infections committee.

The following report deals with the disinfection of nurseries, although similar methods are applied to other contaminated areas in the hospital.

MATERIALS

In the selection of a disinfectant many factors must be considered. A germicide which is irritating to the mucous membranes cannot be used, regardless of its efficiency, because of the unpleasant effect on the personnel. The cost of the product must also be taken into account, as well as its ease in handling. Many good disinfectants are prohibitive either because they are too expensive or because they need to be applied in a special rinsing process which increases the cost of labour.

After testing many compounds, a chlorinated phenol in a soap miscible base, o-benzyl-p-chloro-

phenol (Aseptone*), was selected to be used in all disinfecting procedures. It is efficient from a bacteriological point of view, has a pleasant non-irritating odour, and because it is compatible with soap, it can be used in the routine wash mixture and requires no special application.

The formula for the disinfectant soap mixture is as follows:

<i>Stock solution</i>	
Detergent.....	36 gal.
Aseptone.....	9 gal.
<i>Washing solution</i>	
Stock solution.....	4 oz.
Water (soft).....	1 gal.

A special Aseptone mixture is supplied for use as an aerosol.† This consists of o-benzyl-p-chlorophenol, propylene glycol and alcohol.

METHOD

The obstetrical floor contains three double nurseries, each pair being connected by a single treatment room, and having a total of 47 bassinets in single cubicles. There is also a separate "suspect" nursery containing 4 to 6 bassinets. Each nursery is made available for decontamination twice a month. A specially selected team which has been trained by the administrative housekeeper is responsible for the disinfection of all contaminated areas in the hospital. It is most important that the men be moderately intelligent as well as conscientious and that they work under a supervisor who understands the disinfection procedures.

The empty nursery is well sprayed with the Aseptone aerosol mixture and left for 20 minutes. At the end of this time most of the fog has settled on exposed surfaces. The cleaning crew then proceeds to wash the room thoroughly with the Aseptone soap mixture, and the remaining disinfectant in the air is removed by vacuum filtration.‡ The entire contents of the room are washed including the floors and walls. No exposed area is neglected. When the cleaning is completed (in approximately one hour), a slight but pleasant odour persists which tends to assure the nursing staff that the area has been properly disinfected.

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†Mr. R. N. Wickens, Administrative Housekeeper and member of the N.R.C. Associate Committee on Control of Hospital Infections.

*Rougier, Inc.

†Aseptone Airspray.

‡Electrolux model Z33 with filter.

BACTERIOLOGY

Cultures from the nurseries were taken before and after disinfection in 19 separate tests. Large areas of the walls, floor, bassinets and mattresses, lights, disposal can, radiator, scale and sink were rubbed with wet swabs. The swabs were then incubated in Brewer's thioglycollate medium, and when growth occurred the fluid was plated on egg-yolk medium. In each instance the nursery was thoroughly contaminated before cleaning, but no staphylococci could be found after disinfection. The latter statement should be qualified slightly in that, occasionally, coagulase-positive organisms were found in one or two cultures after cleaning. On investigation it was discovered that they could be traced to a lapse in cleaning technique. As the tests continued, the decontamination crew became more alert to their responsibility and at the end of the investigation, nurseries were routinely proved free of staphylococci. This again emphasizes the importance of special training of the personnel.

DISINFECTANTS

Although the investigation in the nurseries has demonstrated that staphylococcus-free areas can be provided in the hospital by the use of appropriate disinfectant procedures, the point has been raised as to whether thorough cleaning with soap and water alone could accomplish the same results. Since it is known that detergents have a disinfectant action on certain bacteria, an attempt was made to compare the germicidal properties of the disinfectant and the detergent used in the cleaning.

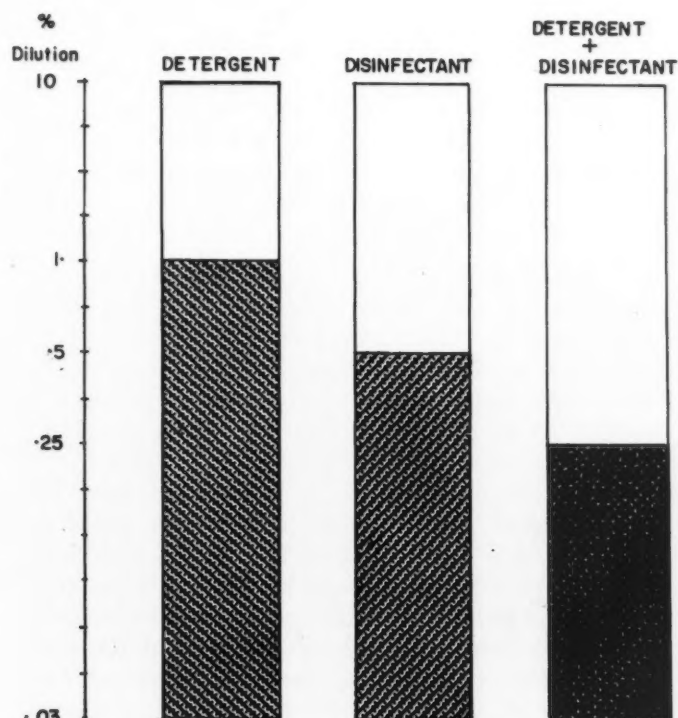


Fig. 1.—Comparison of the action of disinfectant and detergent on *Staph. pyogenes*. White areas indicate no growth; shaded areas, growth.

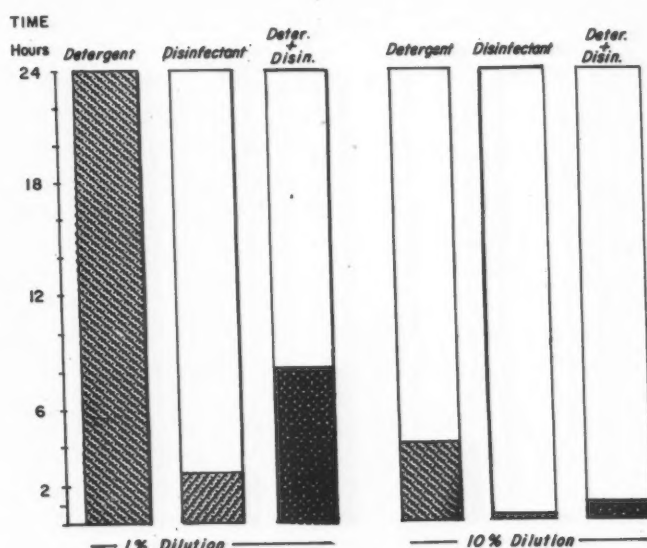


Fig. 2.—Comparison of the efficiency of disinfectant and detergent in the action on *Staph. pyogenes*. White areas indicate no growth; shaded areas, growth.

This investigation falls into the category of "tests of efficiency under operational conditions" (Starkey⁷) and should be accepted as a rough comparison only. Disinfectant, detergent and a mixture of both were tested by broth dilutions in tubes using a strain of *Staph. pyogenes* isolated from a wound, as a test organism. At the end of incubation, because of the opacity of the mixture, each tube was plated on blood agar to determine the presence or absence of growth. The results are shown in Fig. 1. Whereas Aseptone alone has a greater activity than the detergent, the two together have an additive effect.

The killing times of the disinfectant and the detergents are also of interest (Fig. 2). In this comparison Aseptone kills more rapidly than the detergent.

COLONIZATION OF NEWBORN INFANTS BY STAPHYLOCOCCUS PYOGENES

Although colonization of infants by *Staph. pyogenes* has been reported by several authors,^{1, 5, 6} a short investigation was undertaken to determine when colonization occurred and whether the findings here were comparable to those in other nurseries. Eight newborn infants in a single, clean, disinfected nursery were investigated bacteriologically during their stay in hospital (7-10 days) by taking daily cultures from their noses and feces. The results are shown in Table I.

All the babies became carriers of *Staph. pyogenes* before their discharge from hospital, although in four the colonization was intermittent. Coagulase-positive organisms were isolated from two of the infants as early as the second day. The strains of *Staph. pyogenes* isolated were resistant to penicillin but sensitive to other antibiotics, and the majority showed the phage pattern 52/52A/80/81/82.

TABLE I.

Day after birth			Intermittent colonization		No colonization	
	Nose	Feces	Nose	Feces	Nose	Feces
1st						
2nd	6, 8	6,	1	2	3	8
3rd	6, 8	6,	2	7	4	
4th	6, 8	6,		8	5	
5th	6, 8	1, 6,			7	
6th	6, 8	1, 4, 5, 6,				
7th	6, 8	1, 4, 5, 3, 6				

The babies are numbered 1, 2, 3, 4, 5, 6, 7 and 8.

The results of this limited series are in agreement with other authors who have investigated the problem more thoroughly. The series emphasizes the fact that infants were colonized early by staphylococci, and explains the contamination of the nursery when it is presented for disinfection. No attempt was made to trace the mode of spread of the organisms, but since the nursery can be eliminated as a possible source, the contention of Barber *et al.*² that staphylococci are acquired by the infants from either the mothers or the nurses seems very likely.

DISCUSSION

In the numerous reports concerning the prevention and control of staphylococcal infections, too often very little attention is paid to the discussion of techniques from a practical point of view. Many hospital routines have been in practice for years and until recently there has been little need to question their efficacy. But with the realization that the organism *Staph. pyogenes* could present a problem in cross-infections, it has been necessary to re-evaluate some of the accepted standard procedures. With this object in mind Frappier-Davignon *et al.*⁴ have recently published a constructive criticism of nursing techniques with specific reference to

disinfectants commonly in use. The combined disinfectant spray and wash method as outlined in the present report is not considered the only method of disinfection, but it has proved itself to be efficient on a practical as well as bacteriological basis. Many hospitals may have cleaning techniques which are just as adequate or satisfactory, but others that are having difficulties with the many facets of infection control and are not satisfied with their present housekeeping methods, may be able to benefit in a practical way from the experience with general disinfection in this hospital.

Disagreement exists concerning the importance of airborne staphylococci in the spread of infection. Nevertheless until there is definite proof that they are not involved, it would seem wise to include this possibility in eliminating all possible sources of infection. "It must be emphasized that if success is to be achieved in the control of infection, all routes of spread must be closed."³

SUMMARY

A method of disinfecting nurseries is outlined. A chlorinated phenol is applied in a miscible soap base as a washing compound and in an alcohol-propylene glycol mixture as an airspray. The use of the disinfectant is discussed.

The authors wish to thank Mr. Frank Zahlan, chief pharmacist, for his advice on disinfectants, Mr. R. N. Wickens for the co-operation of the housekeeping staff, and Miss R. Cameron, R.N., supervisor of the obstetrical floor.

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RECENT TRENDS IN PSYCHIATRIC MANAGEMENT*

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THE WORD "trends" suggests fashions in psychiatry which, like those in clothes, seem to undergo periodic waxing and waning with return to an old style which is now regarded as a new style. Thus a great deal of the present emphasis on the open-door philosophy seems to be, as Rees has suggested, a return to the moral treatment of insanity.¹ In the middle of the nineteenth century, the insane became regarded as normal people who had lost

their reason as a result of being exposed to severe psychological and social stresses (the so-called moral causes). The "moral" treatment aimed to relieve the patient by friendly associations, talks and purposeful activity in the setting of a mental hospital. At that time, the discharge rates matched some of the best today. It was only when this concept was replaced by the view that insanity was inherited and due to irreversible cellular changes that a great deal of the mismanagement of mentally ill patients crept into being. Now the wheel has turned full circle again, and embodied in this new turn are many of the best of the old ideas. Moreover, there has certainly been an extension of such philosophy into the increasing acceptance and integration of mental hospitals into the community.

*From the Department of Psychiatry, Queen's University, Kingston, Ont. Presented at the Annual Meeting of the Ontario Medical Association, Toronto, May 12, 1960.

In the United Kingdom, for example, the mental hospital frequently serves a region by manning the outpatient departments of the general hospitals, running senior citizen clubs, follow-up services, half-way houses, hostels and sheltered work shops, or even "factories" within the hospital itself. The logical extension of this would probably be the smaller community mental hospital of several hundred beds which was neither a mental hospital nor a general hospital, but something in between. This would embody the principle of front-line psychiatry, as McNeel has expressed it, namely of keeping the patient as close to his normal environment as possible. In this way it seems very probable that some of the secondary desocializing effects of incarceration away from the community will be mitigated. It may well be that these smaller mental hospitals, which will depend in size upon the density of the population, will need to pass on a very few patients for long-term care. It is probable, however, that there will always be those whose character is such that they cannot bear the stresses and strains of competitive modern existence and for whom an asylum, in the literal sense of the word, may be needed. Perhaps, however, this may be better provided by sheltered work shops or even hostels and communities run along the lines of those successfully exploited in tuberculosis.

There is very little doubt that these smaller psychiatric hospitals will come into being in Canada, and their advent is eagerly awaited. However, such developments may seem more the specialist concern of psychiatrists. Of more direct concern to the general body of medicine is the psychiatric unit of the general hospital. These units have multiplied in the last few years both in this province and all over Canada. They would again seem to serve the ideal of front-line psychiatry and perhaps be one of the linch-pins in the psychiatric service. Nevertheless, their function is a somewhat different one from these other facilities I have mentioned. Thus I would consider that such units, and the psychiatrists operating in them, will always be primarily geared to the needs of medicine, surgery, obstetrics and pediatrics. In this way the role of psychiatry in the hospital tends to parallel that of general practice in the community.

It is probable that such units require separate physical space and that, through consultation services, such wards need not become isolated from the rest of the hospital. Whether they will or should be able to play a larger role in a total community psychiatric service must await the future.

It has been estimated that 10% of the beds of all general hospitals should be reserved for psychiatric patients. What kinds of patients might fill these beds and in what way might they be treated? I thought that it might be helpful if I analyzed the last 100 case reports of adults who were referred to me in a general hospital which has, as yet, no psychiatric ward. I think that there is a minimum of bias here as they are composed fairly equally

of staff patients and private patients, and the diagnostic scatter is very much the same in each group.

Depression is by far the commonest condition met with, accounting for 61% of the cases, although only two-thirds of these were primary. Of these primary depressions, 31 out of the 40, that is, over 75%, had primary somatic symptoms which were usually pains and aches. Frequently there was a persisting hypochondriacal preoccupation and anxious self-scrutiny with the fixed belief of severe heart, intestinal or lung disease. The secondary depressions were most commonly found after operations (cancer, hysterectomy, etc.) and severe physical illnesses such as coronary occlusion, encephalitis and arthritis.

The next largest group is that of anxiety phobic hysterical conditions. Hysterical is used to imply somatic conversion, and this diagnostic triad embraced a variety of predominantly painful conditions—backache, headache, urinary and menstrual symptoms, abdominal pain, fits, dizziness—and was usually associated with long-standing character disturbances.

There were only seven patients with delirium or toxic-confusional states: three postoperative (all elderly patients), two with pulmonary infections, one after a head injury and one with advanced carcinoma and probably secondary cerebral metastases.

The psychoses of old age, if we include two of the secondary depressions, accounted for 6% of cases. Noteworthy is the low incidence of schizophrenia which at 2% is not much greater than its incidence amongst the general population (0.85%) and the psychosomatic disorders (4%). Alcoholism, as always, contributes its quota (5%).

In schizophrenia, phenothiazines are undoubtedly the treatment of choice, displacing electroconvulsive therapy (E.C.T.) and insulin coma, and have greatly changed the therapy of this condition. Whether they are specifically antischizophrenic or merely adjunctive to other therapies must await the more dispassionate appraisal of time and adequately controlled studies. Similarly, the relative efficacy of the different compounds, the influence of their chemical structure, the effect of the varying milligram potencies of the different drugs and the relationship of these parameters to the differing syndromes as yet remain obscure. What is, however, more sure is that the dosage needs to be sufficient in both level and duration. Homeopathic administration seems all too common in our experience. Here perhaps again some of the unjustified or only partly justified claims for the higher milligram potency phenothiazines may have crept in, owing to the easier maintenance of a therapeutic dose level in a previously undertreated patient. Adequate rehabilitation and long-term surveillance remain as important as ever and are dependent on the community facilities already mentioned. We are not yet sure how long a patient should be given

the drug, but our present view would be comparable to antiepileptic treatment, which should not be discontinued until some years without attacks.

In contrast to their efficacy in schizophrenia, the phenothiazines have little to offer in the psychoneuroses. The very term "tranquillizer" seems to me to illustrate the confusion that dwells in this area. It is perhaps as though a wide range of drugs in general medicine were called "sedative" without any attempt to separate their various specific properties and attributes. Thus "tranquillizers" is a label which covers a variety of compounds of different chemical structure and different pharmacological action varying from meprobamate through reserpine to phenothiazine derivatives. In our experience in conditions of anxiety and depression they have little to offer. We would echo Trouton in our wonderment that observers in the United States have feared lest tranquillizers will tranquilize North American civilization into oblivion.² Thus, in many controlled studies of anxiety, far from producing oblivion, they do in fact show results little better than a placebo and frequently worse than a simple barbiturate.³ Perhaps part of this misrepresentation may be due to the enormous flood of advertising which reaches our desks.

The deliria or toxic-confusional states are, however, somewhat more easily dealt with since the advent of the phenothiazines. However, as always, common sense plays a large role. The frightened senile patient is best not left alone after an operation on his eyes. He may well misinterpret the common sounds of the ward and be placed in a position of mounting anxiety and perceptual isolation. Small rooms are better than large ones. Nurses, attendants or even non-professional sitters may help greatly, and frequently more than mere medication. Leaving the light on and increasing the supply of oxygen for patients with such conditions as delirium tremens and heart failure respectively, are rather simple procedures that owe nothing to pharmacological advances. However, thioridazine (Mellaril), one of the newer phenothiazines, seems to have fewer toxic side effects and to be suitable as a non-hypnotic sedative in a wide range of conditions. This, like so many of the other phenothiazines, can be given in a single, even large, daily dose. In this way, by evening administration, nocturnal tranquillity can frequently be produced without the need for additional hypnotics.

Alcoholism is a perennial problem and we have as yet no panacea. Whatever the controversies that surround the "moral" or "medical" aspects of the illness, there is little doubt that hospital care must always be available. All too often chronic physical debility flares into an acute medical emergency which, with delirium tremens, taxes the full resources of a modern hospital. The high milligram potency preparations such as perphenazine (Trilafon) and trifluoperazine (Stelazine) have become standard therapy for the acute withdrawal phase and are often best given intramuscularly or intra-

venously. Again it is important to give a sufficient amount (5-10 mg. intramuscularly, two-hourly, increasing as required), and they may usefully be combined with short-acting barbiturates such as amylobarbitone. Vitamins, especially thiamine, and fluid balance are important. Calcium carbimide (Temposil) has proved to be better tolerated than disulfiram (Antabuse), but has the disadvantage of shorter action, permitting a drink to be taken within 24 hours of omitting a dose. Alcoholics Anonymous remain a valuable ally.

The senile conditions are of mounting importance, and first admissions beyond the age of 65 to mental hospitals have almost doubled in the last decade in Canada. Again, I would regard these conditions as more susceptible to common-sense methods, such as the provision of services outside hospitals, than as problems merely of drugs or specialist practice. The availability of home visitors, home helps, meals on wheels that can be taken to the old people in their homes, senior citizens' clubs and residential small hostels will all help to reduce the need for more institutionalization. It is also important to remember that a small cerebrovascular accident may produce an alarming amount of mental confusion, which is, however, merely temporary. The likelihood of a good ultimate outcome should be borne in mind, and such persons are perhaps best treated in a general hospital and returned to their home after some improvement, rather than seeking commitment during the acute phase of the illness. So often the longevity and happiness of these old people does depend on keeping them out of such places as mental hospitals, and at the same time it is very difficult for the psychiatrist to return them to the community once final steps of commitment have been made.

Pain loomed large in the anxiety hysteric group, with frequently some minor physical substrate that neither demanded nor would be susceptible to physical measures. Drugs, whether tranquillizers or barbiturates, were best avoided if for no other reason than the possibility of addiction which in the case of meprobamate was discovered somewhat belatedly.

Curran⁴ has stigmatized the belief of medical students that emotional illness is a kind of mental abscess which, when lanced, produces laudable pus with relief of symptoms. The fallacy of this concept was illustrated by the course and therapy of these conditions. Rarely were they aided by catharsis, which is far more often a barometer of improvement than the cause of it. However, the belief in a hidden unitary "traumatic episode" dies hard and is still the cause of many misplaced therapeutic explorations, frequently with so-called abreactive drugs.

Usually the symptom was a simple indicator of some emotional dissatisfaction of the patient's life, which, if accepted as such, enabled him to use the doctor as a sounding-board for his ideas rather than as a curer of his pain. The alleviation of

his condition then came about more frequently through some readjustment of the defences he had set up against his conflicts rather than through any major alterations in the conflicts themselves. Defences, of course, so often take the form of the kind of environment in which the patient has placed himself, the job he has found, the wife he has married and the friends and recreations he has made for himself. The listening ear of the doctor provides the catalyst for changes or limitations in all these areas.

Hinkle *et al.*,⁵ who regard all physical disease itself as a response to stress, which is of course idiosyncratic, underline the holistic approach to medicine. This helps us place our therapeutic endeavours in the context of the whole person or illness rather than regarding them as end processes in themselves. Thus perhaps health and illness are linked in a circular phenomenon, and the dysfunction of an organ, while a state that may become irreversible in time, is before that, up to a certain point, reversible. In this circle the doctor, or any one of a number of agencies, such as the family, friends, boss and job, may intervene to reverse the picture. The doctor by his manipulations of these factors, by his own personality, or by his prescription of rest, drugs or surgery, may also bring about such a reversal. While all these approaches may be both proper and permissible at various stages of the cycle, my own belief is that one should perhaps first explore avenues that in themselves do not lead to irreversible changes. Once an irreversible state of dysfunction has occurred, it may be necessary to resort to surgery, for example, to restore functional health to the organism as a whole.

The very infrequency, in my figures, of psychosomatic illness indicated that, whatever the controversy of the relative contribution of psyche to soma, the therapy of these illnesses clearly provided no problem to the non-psychiatrist. I would suggest that this is because they produce a psychological regression which is accompanied by a definite physical lesion to be tended. In this way, both patient and doctor fit satisfactorily into their usual relationship or contract in which the physician examines, advises and treats the patient, who in his turn co-operates, submits and pays a fee.⁶ This is perhaps in contrast to chronic illness or the painful conditions we are discussing, in which the patient may not get direct relief of his symptoms and in the end may well come to realize that he is paying more for the doctor's attention and time than for this relief. Here the other factor is the listening role of the doctor. This by its nature may be a difficult undertaking for a doctor who has been trained to diagnose, inform and advise the patient. The very process of *listening* so frequently forces us to refrain from judging and advising. Perhaps this is something the doctor usually learns empirically with the passage of time. Nevertheless, it might be a knowledge that could be imparted by psychiatry to students through an increased under-

standing of the influence of the doctor's own feelings and even the gradual acquisition of the ability to modify this attitude to suit the patient, where diagnosis and treatment are dwarfed by the therapeutic relationship. In this way, some of the specialized knowledge of psychotherapy and psychoanalysis may illuminate the day-to-day contacts of non-psychiatrists.

Perhaps in no condition is such knowledge more important than that of depression. Although this dominates referrals to psychiatry, there is reason to believe that it is also one of the commonest illnesses encountered by general practitioners. Although the overall morbidity of major depressive illness is 1-2%, it has been estimated in a recent study in Britain that some 40% of all patients attending their family doctors are primarily suffering from emotional illness in which depression looms large.⁷

Undoubtedly the high incidence of presenting physical symptoms leads doctors to suspect organic disease in these patients. When their painful complaints fail either to improve or to yield physical signs, they stand in danger of being dismissed as "neurotic". Although their restless importunity and guilt may obscure the picture, the symptoms of exhaustion, loss of interest, failure to concentrate and inability to cope may give a clue to the diagnosis. Where the depression is unaccompanied by physical symptoms, the doctor himself, busy and hard-working, may feel uncomfortable in the face of this unaccountable slowing down of his patient without apparent physical reason. This may well lead him to an attempt to "stimulate" the patient out of this state, but psychological depression may so often be in part physiological stimulation that this would seem unsound. Here imipramine has proved valuable. Structurally similar to promazine, the drug seems to quiet both the guilt and complaints of the patient and would seem best regarded as a physiological depressant. This helps solve some part of the vicious circle that militates against rest. In such a spontaneously remitting illness as depression perhaps rest remains the most important single measure of treatment. In fact, only against the yardstick of spontaneous improvement can the various therapies be evaluated. Mere withdrawal from what has become the unbearable burden of everyday life with the added care and attention of hospital stay would alone give improvement rates of the order of 60% which are claimed for so many of the newer drugs, in particular the monoamine oxidase inhibitors.

Thus in this series over half (25 out of 41) of the patients with primary depressions received electroconvulsive therapy (E.C.T.). This contrasts with a similar period in 1959 when fewer than a quarter of our patients with primary depressions required E.C.T. The difference reflects our recent use of a monoamine oxidase inhibitor, nialamide (Niamid), which proved to give results no better than a placebo in comparison with the markedly

better ones with imipramine (Tofranil). Only two of the patients with secondary depression, however, required E.C.T., the rest being successfully treated by imipramine.

E.C.T. still remains a most valuable form of treatment, but our standard practice is to give a two- to three-week trial of an antidepressant drug first. Only if there is no improvement or in the presence of severe agitated or retarded depression with a risk of suicide would we proceed with E.C.T. The ultimate period of sickness is probably not prolonged by this regimen, which may in fact yield a more stable recovery. Certainly the retarded patient has no wish to indulge in explorative and interpretative psychotherapy, and his very inability to do so may be construed by him as yet another culpable failure. Thus the armamentarium of the general physician is here surely extended by such antidepressant drugs, aided by his knowledge of the natural history of the illness. Perhaps just as the physician of old recognized syphilis as the great diagnostic deceiver, so we in the twentieth century must recognize the multiform nature of depression, fortified by the better weapons at our disposal.

In conclusion, I would say that the trends in psychiatry which to me are the most optimistic

are those which help to place the specialty back into the fold of medicine. To this end, the newer drugs are undoubtedly playing their part. "Putting psychiatry back into medicine" is a phrase that we owe to Ayd. However, I consider that it will be a long time before we reach an integrated practice of both medicine and psychiatry. Perhaps this will be achieved both by the general hospitals advancing towards psychiatry and the mental hospital advancing towards the general hospital. In this way a proper community of service will be set up without perhaps the series of parallel, and at times overlapping, facilities that exist at present. Until continuity of treatment is achieved, I think that our best efforts will always be to some extent vitiated.

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USE OF ALPHAPRODINE AND LEVALLORPHAN DURING LABOUR*

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THE EFFICIENCY and safety of pain-relieving drugs administered during labour must be assessed in the light of extreme sensitivity of fetal respiration to narcosis. Barcroft's¹ investigations on sheep revealed the pattern of development of the respiratory control mechanism in the medulla, and its response to the new environment after birth. Snyder² and many other workers have contributed further knowledge concerning the reactions of fetal respiration to many extraneous factors. It is generally accepted that analgesic and anesthetic agents can depress the respiratory system of the fetus and newborn infant, but it is essential to remember that the respiratory system practically always bears the brunt of any injury, direct or indirect, incurred during labour and delivery. Therefore, in attempting to establish the value of any analgesic or anesthetic agent, the whole process of labour must be reviewed with great care. At times it is extremely difficult to dissociate the effect of drugs from complications arising from labour itself, and thus carelessly conceived opinions can create unnecessary bias.

Adequate relief from pain during labour entails the use of the more powerful narcotics, the effects of which produce varying degrees of respiratory depression. Alphaprodine (Nisentil) is no exception to this rule, and in doses of 1 mg./kg. it has been found to reduce both the respiratory rate and the minute volume in adults.³ The value of alphaprodine as an obstetrical analgesic has been investigated by many workers, as the sole agent, or in combination with scopolamine, or with the barbiturates. The general opinion has been that it is a satisfactory analgesic if given at frequent intervals, since its effect is comparatively short-lived, approximately an hour in duration.⁴

The introduction of narcotic antagonists has led inevitably to administration of larger doses of narcotics and to a tendency to rely on the good offices of the antagonist drug in the event of untoward reaction to the narcotic. Levallorphan tartrate (Lorfan), the allyl derivative of levodromoran, is one of the more recently synthesized narcotic antagonists. Studying the mode of action of this narcotic antagonist, Landmesser, Cobb and Converse⁵ offer the hypothesis that narcotic analgesics and antagonists compete for cell sites in the sensory and respiratory centres. They suggest that administration of a narcotic antagonist results in displacement of the analgesic drug from most of the respiratory and some of the sensory receptor cells. This results in elimination of the respiratory depression produced by the narcotic.

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The use of alphaprodine and levallorphan in obstetrics has been described by Backner, Foldes and Gordon,⁶ and their observations on 200 patients indicate the effectiveness of this mixture in reducing the time of onset of breathing and crying in the newborn infant. Previous observations by one of us (H.R.⁷) on the effect of levallorphan on respiratory depression at birth due to meperidine (Demerol) analgesia indicated that the antagonist was particularly effective when the dose of meperidine had been high.

CASE MATERIAL AND METHOD

The survey presented here was carried out on 391 patients. Two groups were established by one of the methods of random selection; the patients in the treated group numbered 199 and received a mixture of alphaprodine and levallorphan while those in the control group totalled 192 and were given alphaprodine only. The drugs were administered in accordance with the following instructions:

When labour was well established, the uterine contractions regular and causing definite discomfort, and the cervix at least two fingers dilated

1. The patients in the *treated group* received alphaprodine 60 mg., levallorphan 1 mg. administered intramuscularly and repeated at 2-hourly intervals until the 2nd stage of labour was reached. The second and subsequent injections were delayed if the patient did not require further medication after the 2-hourly interval.

2. Patients in the *control group* received alphaprodine 60 mg. given intramuscularly and repeated as in the treated patients.

TABLE I.—ANESTHETIC TECHNIQUE USED FOR DELIVERY

Anesthetic technique	Treated group (No. of patients)	Control group (No. of patients)
Local infiltration of perineum	42	34
Pudendal nerve block.....	21	13
Epidural block.....	25	29
Subarachnoid block.....	1	0
Nitrous oxide and oxygen...	84	73
Nitrous oxide, oxygen and trichlorethylene.....	33	29
Cyclopropane.....	36	38
Cyclopropane and ether.....	0	1
Halothane.....	2	3
$X^2 = 2.684$ 8 d.f. P = .90		

It will be noticed that the total number of anesthetics listed in Table I is greater than the number of patients in the survey. This is because a large proportion of mothers delivered under local infiltration or pudendal nerve block also received nitrous oxide and oxygen inhalations. The distribution of the types of anesthetics in each group has been analyzed statistically, and according to the table of Chi square, $P = .90$. Therefore it is felt that the two groups can be compared without influence of the terminal form of anesthesia upon such comparison.

TABLE II.—DISTRIBUTION ACCORDING TO PARITY IN THE TWO GROUPS

Parity	Treated group (No. of patients)	Control group (No. of patients)
Primigravida.....	74	72
Multipara.....	125	120
$X^2 = .01$ 1 d.f. P = .90		

The statistical analysis of data in Table II gives the probability value of .90, indicating no significant difference in the make-up of the groups in this respect.

TABLE III.—MATURITY DISTRIBUTION

Duration of pregnancy	Treated group (No. of patients)	Control group (No. of patients)
28 - 35 weeks.....	3	9
36 - 38 ".....	27	27
39 - 42 ".....	143	134
Over 42 ".....	26	22
$X^2 = 4.244$ 3 d.f. P = .20		

The patients have been grouped according to maturity, and the distribution in the treated and control groups has been examined. The result is not significant, $P = .20$. Thus without subdividing the treated and control groups according to parity or maturity it seems reasonable to compare them as a whole, and the results produced by the administration of alphaprodine and levallorphan can be validly assessed.

RESULTS

The primary aim of this survey was to estimate the value of combining levallorphan with alphaprodine in order to reduce or prevent anoxia in the newborn. However, other important points have been recorded, such as relief of pain, length of labour, and any complications arising during the third stage. A specially designed proforma recorded the necessary data concerning the patient's progress throughout labour, and the condition of the mother and infant after delivery. The observations of the labour floor staff and those of the mother herself were taken into consideration. Careful note was made of the condition of the infant at birth and of his condition in the nursery the next day.

Relief of Pain

There were three classifications: (i) Good—indicating an unqualified success. (ii) Fair—when the relief was partial at some time during labour but the general impression was quite good. (iii) Poor—poor or no relief at all.

TABLE IV.—AMOUNT OF PAIN RELIEF PROVIDED BY THE TRIAL DRUGS

Degree of pain relief	Treated group (No. of patients)	Control group (No. of patients)
Good relief.....	98	83
Fair relief.....	73	79
Poor relief.....	28	30
$X^2 = 1.437$ 2 d.f. P = .50		

The analysis in Table IV indicates that there is no effect on the part of the levallorphan to enhance or impair the sedation provided by the alphaprodine.

TABLE V.—VARIATION IN THE LENGTH OF THE FIRST STAGE OF LABOUR

Length of 1st stage of labour	Treated group (No. of patients)	Control group (No. of patients)
Less than 12 hours	141	129
12 to 24 hours	46	51
Over 24 hours	12	12
$\chi^2 = .670$ 2 d.f. $P = .70$		

Table V shows the distribution of the length of the first stage of labour in both groups. The length of the first stage is difficult to calculate with any accuracy, but estimation of the time taken from the onset of regular uterine contractions and/or evidence of "show", to full dilatation of the cervix, gives a fairly standard value. Neither group shows a significant increase in length of time over the other.

TABLE VI.—INCIDENCE OF COMPLICATIONS OF THE THIRD STAGE OF LABOUR

Third stage complications	Treated group (No. of patients)	Control group (No. of patients)
Postpartum hemorrhage . . .	5	3
Retained placenta	5	4
Retained placenta and postpartum hemorrhage	2	0

Table VI shows the incidence of postpartum hemorrhage and retained placenta. It is doubtful if there is any real significance in these numbers, even though the treated group shows a higher incidence of complications.

TABLE VII.—DISTRIBUTION OF SIDE EFFECTS

Side effects	Treated group (No. of patients)	Control group (No. of patients)
Dizziness	3	3
Nausea	1	1
Vomiting	1	3

Table VII indicates the distribution of side effects. These were minimal, although they appear slightly higher in the control group.

TABLE VIII.—PERINATAL MORTALITY AND THE INCIDENCE OF SEVERE ANOXIA

Perinatal mortality and morbidity	Treated group (No. of patients)	Control group (No. of patients)
Stillbirths	1	0
Severe anoxia (Apgar rating 1-4)	7	13
Perinatal deaths	1	4

Table VIII presents the major infant morbidity and mortality data. In the treated group the perinatal death is also included in the number of severely asphyxiated infants, and in the control

group, four perinatal deaths are recorded among the 13 babies severely anoxic at birth. These cases are described in detail below. Severe anoxia was recorded whenever the Apgar rating was from 1 to 4 inclusive.

Apgar ratings were recorded for each infant in this series and the mean Apgar rating in each group was: treated group 8.56 and control group 8.37. Calculation of the significance of these values showed that the standard error of the difference (S.E.D.) between the means is 0.1758, $t = 1.109$, and $P = 0.1$. This indicates that there is no statistical difference between the two means.

DISCUSSION

From observations on the effect of alphaprodine on respiration in the conscious adult, Swerdlow, Foldes and Siker⁸ have concluded that this drug has the power to depress the respiratory rate. Levallorphan given after or with the narcotic prevented the fall in respiratory rate to a satisfactory degree, although it appeared to be more effective in counteracting the decrease in depth of respiration than the rate. Machaj and Foldes⁹ present three uses for the narcotic antagonists: (1) They are valuable in the treatment of overdosage of narcotic drugs. (2) They make possible the deliberate use of large doses of narcotic drugs for surgical and obstetrical analgesia. (3) They are useful for the prevention and the treatment of neonatal depression due to excess narcosis during labour.

Bearing these points in mind, it is possible to appreciate the value of levallorphan, but one should avoid being lulled into a false sense of security in which unnecessarily large doses of narcotic drugs are administered during labour. Moreover, it is essential that the antagonist should not be administered when the cause of the anoxia is other than the untoward effect of a narcotic. Hunter¹⁰ is inclined to think that the antagonist drugs are most effective when given therapeutically rather than prophylactically. This point of view seems to be borne out by the results of this survey in which, even though the incidence of severe anoxia was higher in the control group, there was a correspondingly higher incidence of obstetrical complications to account for the increase. Prophylactic doses added to meperidine did not show any statistically significant improvement in the respiratory minute volume of the newborn when compared with a control series (Roberts and Please¹¹). Stoetling and Hicks,¹² using the drugs during adult anesthesia, also state that levallorphan given with alphaprodine is apparently less effective than levallorphan given after alphaprodine, in the manner described by Foldes *et al.*¹³ and by Gross and Hamilton.¹⁴

Consideration of the results of this survey leaves the authors with no doubt that some of the value in pain relief was lost when the time interval

STILLBIRTH IN THE TREATED GROUP

Parity	Maturity	Wt. at birth	Length of labour	Analgesia	Anesthesia	Condition of infant at birth and treatment
0	Post mature	9 lb.	1st stage—8 hr. 45 min. 2nd stage—1 hr. 45 min.	Alphaprodine, levallorphan. 1 injection 4 hr. 15 min. before birth of infant	Nitrous oxide and oxygen, trichlorethylene	Stillborn and very slightly macerated. Placenta described as gritty. Post-mortem examination revealed no abnormalities except evidence of intrauterine asphyxia.

SEVERE ANOXIA IN INFANTS IN THE CONTROL GROUP

0	Post mature	7 lb. 8½ oz.	1st stage—21 hr. 2nd stage—3 hr.	Alphaprodine. 5 injections. Last dose 2 hr. 10 min. before delivery	Cyclopropane and ether	Difficult forceps delivery. Infant severely anoxic. Intubation attempted. Levallorphan 0.25 mg., i.m. Satisfactory within 10 minutes.
0	At term	7 lb. 4½ oz.	1st stage—11 hr. 2nd stage—20 min.	Alphaprodine. 2 injections. Last dose 2 hr. before delivery	Nitrous oxide and oxygen, trichlorethylene	Infant breathed once, then became severely anoxic. Intubation, oxygenation. Levallorphan 0.25 mg., i.m. Satisfactory within 10 minutes.
0	At term	7 lb. 1½ oz.	1st stage—7 hr. 2nd stage—1½ hr.	Alphaprodine. 3 injections. Last dose 2½ hr. before delivery.	Nitrous oxide and oxygen, pudendal block	Suction, oxygenation, levallorphan 0.25 mg., i.m., breathing but lacked tone at 10 minutes. Large caput. Grunting respirations, ABO incompatibility. Died 4 days later.
1	34 weeks	4 lb. 15½ oz. (2nd twin)	1st stage—6½ hr. 2nd stage—55 min.	Alphaprodine. 1 injection 50 min. before delivery	Pudendal nerve block	1st twin spontaneous vertex delivery, cried lustily. 2nd twin assisted breech and forceps to aftercoming head. Limp, little response to resuscitation. Levallorphan 0.25 mg., i.m. Died within 24 hours.
0	At term	8 lb. 14½ oz.	1st stage—12 hr. 2nd stage—45 min.	Alphaprodine. 3 injections. Last one 2 hr. before delivery	Epidural	Apneic at birth. Low forceps delivery. Intubation, oxygenation, levallorphan 0.1 mg., i.m. Responded within 4-5 minutes. Maternal toxemia.
0	At term	7 lb. 3 oz.	1st stage—12¼ hr. 2nd stage—48 min.	Alphaprodine. 2 injections. Last one 1½ hr. before delivery	Nitrous oxide and oxygen, trichlorethylene	Cord tightly around neck, gasped once, then apneic and cyanosed. Oxygen under positive pressure. Levallorphan 0.25 mg., i.m. Crying within 5 min.
0	38 weeks	5 lb. ¼ oz.	1st stage—16 hr. 2nd stage—1 hr. 12 min.	Alphaprodine. 2 injections. Last one 2 hr. before delivery	Epidural	Cried at birth, then became pale and apneic. Intubation, oxygenation, levallorphan 0.25 mg., i.m. Respiration established and crying within 10 minutes. Low forceps delivery.
7	At term	7 lb. 3½ oz.	1st stage—12 hr. 2nd stage—30 min.	Alphaprodine. 2 injections. Last one ½ hr. before delivery	Nitrous oxide and oxygen	Cried at birth, then cyanosed and apneic. Levallorphan 0.25 mg. into umbilical vein. Responded dramatically.
0	At term	7 lb. 3 oz.	1st stage—30 hr. 2nd stage—45 min.	Alphaprodine. 5 injections. Last one 1½ hr. before delivery	Epidural	Poor, but cried at birth, then apneic, flaccid, and heart rate slowed. Intubated and oxygen insufflation. Levallorphan 0.1 mg., i.m. Respirations re-established in 5 mins. Crying in 10 minutes.
3	37 weeks	6 lb. 3 oz.	1st stage—5 hr. 2nd stage—40 min.	Alphaprodine. 1 injection 1½ hr. before delivery	Nitrous oxide and oxygen	Limp at birth. Considerable meconium and the cord tightly around the neck. Oxygen by mask and the infant was crying within 5 minutes.
1	At term	7 lb. 8½ oz.	1st stage—11 hr. 45 min. 2nd stage—27 min.	Alphaprodine. 4 injections. Last one 1 hr. before delivery		Apneic at birth. Intubation, oxygen insufflation. Respirations established in 3 minutes.

SEVERE ANOXIA IN INFANTS IN THE CONTROL GROUP

Parity	Maturity	Wt. at birth	Length of labour	Analgesia	Anesthesia	Condition of infant at birth and treatment
1	At term	5 lb. 12 $\frac{3}{4}$ oz.	1st stage—3 hr. 2nd stage—50 min.	Alphaprodine. 1 injection 1 hr. before delivery	Cyclopropane and ether	Apneic. Intubated and oxygen insufflation. Hare lip, cleft palate and abdominal distension. When respirations established there was indrawing of lower costal area. Died 24 hours later.
0	34 weeks	4 lb. 15 $\frac{1}{4}$ oz.	1st stage—6 $\frac{1}{2}$ hr. 2nd stage—55 min.	Alphaprodine. 1 injection 1 hr. before delivery	Local infiltration of perineum	Limp and slow to breathe. Assisted breech with forceps to the aftercoming head. Died 24 hours later.
1	32 weeks	3 lb. 11 $\frac{1}{4}$ oz.	1st stage—1 hr. 45 min. 2nd stage—10 min.	Alphaprodine. 1 injection 1 $\frac{1}{2}$ hours before delivery	Cyclopropane	Cried at birth, then became apneic and cyanosed. Intubated and oxygen insufflation. Respirations established in 10 min., but did not maintain colour well out of oxygen. Died in 24 hours.

SEVERE ANOXIA IN INFANTS IN THE TREATED GROUP

0	39 weeks	7 lb. 6 $\frac{1}{2}$ oz.	1st stage—18 hr. 2nd stage—45 min.	Alphaprodine, levallorphan. 3 injections. Last dose 2 hr. 50 min. before delivery	Nitrous oxide and oxygen	Cried once when delivered, then became anoxic. Endotracheal intubation, oxygenation. Satisfactory after 3 minutes.
3	At term	6 lb. 12 $\frac{1}{2}$ oz.	1st stage—1 hr. 40 min. 2nd stage—32 min.	Alphaprodine, levallorphan. 1 injection, 1 hr. 12 min. before delivery	Nitrous oxide and oxygen	Endotracheal intubation, gastric suction, oxygenation. Levallorphan 0.25 mg., i.m. Satisfactory within 10 minutes.
1	Post mature	7 lb. 4 oz.	1st stage—6 hr. 40 min. 2nd stage—25 min. Manual removal Placenta	Alphaprodine, levallorphan. 1 injection, 2 hr. 5 min. before delivery	Cyclopropane and oxygen	Intubation, oxygenation, gastric suction. Satisfactory after 5 minutes.
3	At term	7 lb. 1 $\frac{1}{2}$ oz.	1st stage—42 hr. 2nd stage—10 min.	Alphaprodine, levallorphan. 2 injections. Last dose 15 min. before delivery.	Nitrous oxide and oxygen	Slow to breathe, but satisfactory in 10 minutes. Erythroblastosis.
0	Post mature	8 lb. 1 oz.*	1st stage—14 hr.	Alphaprodine, levallorphan. 2 injections. Last dose 2 hr. 15 min. before delivery	Nitrous oxide and oxygen, pudendal nerve block	Breech delivery. Suprapubic pressure for delivery of head. Responded to suction and oxygenation within 10 minutes.
1	38 weeks	7 lb. 13 $\frac{3}{4}$ oz.	1st stage—6 hr. 45 min. 2nd stage—23 min.	Alphaprodine, levallorphan. 1 injection 2 hr. before delivery	Nitrous oxide and oxygen, trichlorethylene	Pale, limp, apneic. Intubated, oxygen insufflation. Levallorphan 0.25 mg., i.m. Responded within 10 minutes.
1	38 weeks	7 lb. 7 $\frac{1}{4}$ oz.	1st stage—3 hr. 30 min. 2nd stage—30 min.	Alphaprodine, levallorphan. 1 injection 1 hr. before delivery	Cyclopropane	Apneic, considerable meconium. Multiple congenital deformities. Intubated, oxygen insufflation. Respirations established in 15 minutes. Died few hours later.

between doses was allowed to exceed two hours, and even the latter appeared too long. This confirms the findings of most workers that the narcotic, alphaprodine, is effective for a short duration only. The addition of the antagonist to the alphaprodine did not appear to diminish the degree of pain relief. At the most, any analysis of pain relief can give only a general idea of the efficiency of a drug, as the accurate measurement of pain defies any standard estimation. Our degree of analgesia ob-

tained appears to fall below that presented by Backner¹⁵ and we think that this is because scopolamine was not employed and also because the interval between doses was longer.

The levallorphan administered to anoxic infants, described in detail, produced satisfactory and sometimes dramatic results. The same response was seen when the antagonist was given intramuscularly to nine infants suffering from moderate anoxia (Apgar 5-7). It is now considered that a

dose of 0.1 mg. is more suitable than 0.25 mg., since the former can be repeated without risk of subsequent depression due to the antagonist itself. In two infants receiving levallorphan after birth there was some mild secondary depression. Whether this was due to the narcotic, the antagonist, or to some other factor associated with delivery was not easy to decide.

SUMMARY

A total of 391 patients have been observed during labour. Two groups were formed by a method of random selection: 199 patients formed the treated group, who received a combination of alphaprodine 60 mg. and levallorphan 1 mg. intramuscularly at 2-hourly intervals until the second stage was reached; and 192 patients formed the control group, who received alphaprodine 60 mg. at intervals similar to the patients in the treated group. Facts recorded were pain relief, length of labour, complications of the third stage, side effects, and the condition of the infant at birth.

Levallorphan was found to be extremely effective when used to counteract anoxia due to alphaprodine, but it did not appear to influence the results, according to statistical analysis, when combined with alphaprodine.

HUMAN BIOASSAY OF A NEW ANTITUSSIVE AGENT*

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THE POTENCY of cough suppressants has previously been found to be amenable to assessment by inducing cough in normal persons,¹ rather than by attempting to study the action of the drug on subjects with chronic cough. In cough-free individuals, cough can be induced by inhalation of an aerosol spray of citric acid. This causes a reproducible and relatively constant cough reaction in successive trials. Various drugs can then be administered and their antitussive action measured and compared with the normal response in unmedicated persons. We consider that this technique leads to a much more accurate determination of antitussive action than observations made on subjects with chronic cough.

Similar investigations of antitussive agents have previously been made,^{2,3} but we have not considered them to be completely satisfactory because of the absence of placebo control and because of

We wish to thank Dr. Geraldine Maloney for permission to make these observations on patients under her jurisdiction. The excellent co-operation given by Miss Percival, supervisor of the labour floor, and her nursing staff made this work possible. Miss Margaret Robins, R.N., research assistant to the anesthetic department, kept meticulous records on all cases. We would like also to express our gratitude to the board of governors of Women's College Hospital for the research grants given to the authors and to Miss Robins from the Dorothy Graham Research Fund. Hoffmann-LaRoche Ltd. supplied the drugs used in this survey and made a valuable contribution to the research fund.

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possible bias introduced by the investigator's knowledge of which agent had been administered.

These objections were met in the present investigation by the use of a double-blind method of drug administration and inclusion of a placebo among the agents administered. It was also considered, because of previous experience, that the period during which coughs were counted, after inhalation of the aerosol, should be decreased from 5 minutes to 1 minute, as almost all coughs fell within this shorter interval, and those that did not could possibly be due to extraneous factors.

OBJECT

The object of the present study was to compare the cough-suppressant activity of an as yet untested compound with that of codeine. This preparation, called R-1132 by the manufacturer,‡ is a true synthetic material which has previously been investigated as an antidiarrheal agent and found to be an effective inhibitor of gastrointestinal motility. Its analgesic action is slight, and it is free of parasympatholytic activity.

MATERIAL AND METHODS

The procedure followed was modified from that described by Bickerman and Barach¹ in 1954 and repeated by Shane et al. in 1957 and 1958.^{2,3}

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TABLE I.—COUGH RESPONSE IN TREATED AND UNTREATED SUBJECTS

A. Untreated No. of coughs				B. Placebo No. of coughs				C. R-1132 5 mg. No. of coughs				D. Codeine 30 mg. No. of coughs							
Test No. 1	2	3	Mean	Test No. 1	2	3	Mean	Test No. 1	2	3	Mean	Test No. 1	2	3	Mean				
E.B.	6	9	9	8.0	6	6	5	5.7	8	8	7	7.7	3	4	0	2.3			
J.B.	3	4	5	4.0	3	5	4	4.0	6	5	2	4.3	2	1	0	1.0			
M.D.	6	6	6	6.0	9	6	6	7.0	5	0	10	5.0	1	2	4	2.3			
F.Z.	9	9	12	10.0	8	8	10	8.7	10	9	11	10.0	10	8	6	8.0			
M.P.	8	8	11	9.0	8	8	9	8.3	8	5	5	6.0	6	7	3	5.3			
B.M.	9	10	12	10.3	8	11	8	9.0	4	0	2	2.0	7	1	0	2.7			
A.P.	6	5	8	6.3	8	5	5	6.0	2	2	0	1.3	1	6	0	2.3			
C.B.	13	15	11	13.0	13	11	11	11.7	9	5	10	8.0	8	9	9	8.7			
J.D.	9	6	4	6.3	9	5	4	6.0	8	6	6	6.7	5	7	5	5.7			
J.L.	7	10	8	8.3	5	0	2	2.3	0	0	4	1.3	0	0	0	0.0			
H.M.	17	17	18	17.3	15	15	16	15.3	11	10	10	10.3	9	6	4	6.3			
J.O.	9	14	7	10.0	13	7	11	10.3	8	3	8	6.3	9	3	6	6.0			
R.M.	12	11	14	12.3	10	13	11	11.3	13	12	10	11.7	11	8	9	9.3			
C.C.	15	19	14	16.0	16	17	16	16.3	12	12	10	11.3	15	16	13	14.7			
J.S.	12	17	18	15.7	17	18	10	15.0	12	16	17	15.0	8	9	10	9.0			
E.H.	6	4	8	6.0	6	5	6	5.7	6	7	6	6.3	4	5	5	4.7			
D.M.	4	4	2	3.3	3	5	3	3.7	3	4	3	3.3	4	1	1	2.0			
Group mean				9.5	Group mean				8.6	Group mean				6.8	Group mean				5.3

Oxygen at a flow rate of 10 l./min. was used as the vehicle for nebulization of 10% and 15% solutions of citric acid. Five deep inhalations of this oxygen-citric acid spray were used to initiate the cough reflex.

Forty-eight volunteers were screened for the presence of spontaneous cough and were tested for their response to 10% citric acid aerosol spray. Those who did not respond to this concentration on two successive occasions were tested with a 15% solution. Thirteen subjects were unresponsive to both concentrations and were excluded from the study. Six others did not complete the study. Of the 29 remaining volunteers, 5 required a 15% aerosol solution to induce cough, while in the others the 10% solution was satisfactory. On 12 occasions, separated by at least 24 hours, each volunteer took five deep breaths of the aerosol and the coughs occurring within a one-minute period were recorded. On the first three occasions no medication was given. In the nine subsequent tests, one hour before testing, identical capsules containing either 30 mg. codeine, 5 mg. R-1132 or an indistinguishable placebo were administered. These capsules were prepared and placed in numerous small bottles by the pharmaceutical company, and labelled by them with a code chosen from a table of random numbers. Thus, of the group tested on any one occasion, some individuals received codeine, some R-1132 and others the placebo. Since neither the subjects nor the investigator knew which preparation was administered, or to whom, one could not determine by experience which was the active compound; i.e. the study was double-blind.

Among the 29 subjects completing the test, 12 were found to have aberrant responses, e.g. complete cough suppression by all medications, increased cough response or unchanged response throughout all tests. These 12 were excluded from the final results.

RESULTS

The data obtained from each subject (i.e. untreated, treated with placebo, treated with R-1132, and treated with codeine) are presented in Table I.

In this table, the number of coughs in each series of three tests, when averaged and the percentage calculated, shows the depression of the cough reflex by placebo to be 10% of the unmedicated level, that of 5 mg. R-1132 to be 30% of the unmedicated level, and that of 30 mg. codeine to be 45% of the unmedicated level. This indicates that R-1132, at a dosage of 1/6 that of codeine, is approximately 2/3 as effective as codeine.

These results were subjected to a statistical analysis of variance, as outlined in Table II.

TABLE II.—STATISTICAL EVALUATION OF RESULTS

d *					
$t = \frac{\sqrt{\frac{\sum d_2 + \sum d_2}{(n_1 - 1)(n_2 - 1)} \times \frac{n_1 + n_2}{n_1 \times n_2}}}{\text{(Calculation of probability)}}$					
Cause of variation	Degrees of freedom	Sum of squares	Mean square	F*	P*
Drugs	3	551	183.7	34.4	<0.001
Occasions	2	5	2.5	0.5	>0.05
Subjects	16	2672	167.0	30.0	<0.001
Groups	21	3228			
(A B) - (C D)	1	483	483.0		<0.001
(A C) - (B D)	1	66	66.0		<0.001
(B C) - (A D)	1	2	2.0		>0.05
Error	182	973	5346.0		
Total	203	4201			

Adjustment for mean 1156.5

*t = corrected deviation.

d = deviation from the mean.

n = number in sample.

F = variance ratio.

P = probability of difference.

The results of the statistical evaluation of the collected data, as shown in the table, permit the

following conclusions to be drawn: (1) There was no significant difference in the number of coughs in any one subject between successive testings, under similar medication or no medication. This validates the method of testing. (2) There was a significant variation between different subjects as to the number of coughs produced. (3) There was a significant difference between the results of each of the medications. The placebo, R-1132 and codeine all exerted an antitussive effect in varying degrees. (4) The degree to which the cough reflex was depressed by the drugs increased in the order, → placebo → R-1132, 5 mg. → codeine, 30 mg. (5) Although R-1132 did not depress the cough reflex to the same degree as did codeine, it is emphasized that the dosage of codeine was 6 times that of R-1132.

Further tests were performed with an increased dose of R-1132. Six subjects were given 15 mg. R-1132, followed, after an appropriate interval, by the placebo. In four of these there was complete cough suppression with R-1132, and in the other two there was marked depression of the cough reflex. No detectable decrease was noted with the placebo. Two subjects who had taken 15 mg. R-1132 complained of minor side effects, viz., dizziness, headaches and lassitude. Doses of 10 mg. in these two subjects produced no side effects.

SUMMARY

The antitussive effect of a new synthetic material, designated as R-1132, in doses of 5 mg., was compared with that of codeine 30 mg. and a placebo in 17 volunteers in whom cough was produced by the inhalation of an aerosol spray of 10% or 15% citric acid.

It was found that R-1132 decreased the frequency of induced cough to 70% of the unmedicated figure, while 30 mg. codeine decreased the frequency of cough to 55% of the unmedicated figure. This would indicate that R-1132 in 1/6 the dosage of codeine is approximately 2/3 as effective.

Further tests with higher doses of R-1132 appeared to indicate that, up to a point, the cough reflex is depressed in proportion to the dosage administered. However, a dose of 15 mg. was characterized by mild, though definite, undesirable side effects. It would seem therefore that the maximum feasible dose of this preparation is approximately 10 mg., and that this dosage can be expected to produce significant cough suppression.

The results obtained were found to be statistically significant.

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REVIEW ARTICLE

CARDIAC CATHETERIZATION*

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THE PROCEDURE known as cardiac catheterization, which at present involves the passage of a hollow tube or "catheter" to the heart, for the purpose of obtaining pressure measurements and blood samples from within this organ, had its origin in 1908, when Fritz Bleichroeder, chief resident of the medical department of the Municipal Hospital, Gitschienenstrasse in Berlin, Germany, successfully catheterized the heart of Joseph Portman, laboratory technician at the hospital.¹ In 1929 Dr. Forssman, also of Germany, catheterized his own heart by inserting a urethral catheter into his basilic vein and advancing it to the right atrium. He verified the position of the catheter by fluoroscopy, and described no discomfort connected with the pro-

cedure. The work remained of academic interest until 1944, when Drs. Cournand and Ranges in the U.S.A. popularized the procedure for the study of cardiac diseases.

Until recently the exact diagnosis of a particular heart murmur had little practical value. Patients with cardiac murmurs could be broadly classified as suffering from congenital heart disease or rheumatic heart disease, and there existed no great need to clarify the diagnosis further. However, now that thoracic surgeons have much to offer the cardiac patient, the exact cause of a heart murmur has become of more than academic importance. It has become important to know, preferably while the patient is still well, whether his murmur is innocent, or whether it is a manifestation of organic heart disease. If organic heart disease exists, it has become of prime importance to know exactly what, where, and how serious the abnormality is, or how serious it is likely to become.

Mechanical abnormalities of the heart, such as are found in patients with congenital or rheumatic

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heart disease, lend themselves especially well to precise diagnosis by means of cardiac catheterization. Here, obstructions to the normal flow of blood, as are found in the valvular stenoses and insufficiencies, can be diagnosed and located by the abnormal pressure elevations produced proximal to the obstruction. Intracardiac defects, which allow the mixing of right-sided and left-sided bloods (as represented in patients with interventricular and interatrial septal defects, and patent ductus arteriosus), can be diagnosed and located by the abnormal oxygen content of the blood sampled from the chamber receiving the shunt.

Broadly speaking, two groups of patients are candidates for cardiac catheterization. The first group consists of patients with heart murmurs of uncertain etiology. This is especially true if the patient is at all likely to become a surgical candidate in the future. The second group consists of patients with murmurs of known origin, the severity of which is unknown. As an example of this last point might be cited the patient with the typical interventricular septal defect. Here the murmur is so representative of the defect that the clinical diagnosis is reasonably certain, but the degree of shunting through this defect and the degree of potential danger to the patient is not known. Cardiac catheterization would then be undertaken to estimate the amount of blood shunting through the defect, and this in turn would enable one to decide whether or not surgical correction of the defect would be eventually necessary.

Since most patients with heart murmurs, unless of the obviously functional variety, and many of these also, will at one time or another in their lives be subject to cardiac catheterization, it is of importance to know the dangers involved in the procedure. First and most important, the risk of death is quite low. The committee on cardiac catheterizations of the American Heart Association recorded only four deaths in over 5500 cardiac catheterizations, and even these four deaths could be ascribed to other causes.² It is safe to say that almost no risk is involved in catheterization of a normal patient. On the other hand, the deeply cyanotic infant of 4 lb., or the adult in congestive failure with gross arrhythmias, presents a very definite hazard, usually from ventricular fibrillation. Nevertheless, since eventual surgical correction may salvage many of these seriously ill patients, cardiac catheterization is never denied an individual on the basis of the severity of his illness. Where possible of course, it is best to catheterize an individual with heart disease while he is still healthy, and if nothing surgical need be done for his lesion, so much the better. If at a later date he should require surgery, the diagnosis is certain and he need not be subjected to a procedure which has become potentially hazardous because of his deteriorating state.

Many complications of cardiac catheterization have appeared in the literature, but with care these

are not often encountered. The most frequent complications are the arrhythmias produced by the exploring catheter. Unimportant atrial, nodal and ventricular extrasystoles appear during most catheterizations and can usually be ignored. These are especially common when the catheter is in the vicinity of the pulmonary valve. Runs of ventricular tachycardia may occur in sick hearts and are harbingers of trouble. Their appearance signifies an extremely irritable heart and usually indicates the abandonment of the procedure. Prolonged runs of supraventricular tachycardia may occur when the catheter irritates the atrium, but usually disappear on withdrawing the catheter from the irritable site. If this is insufficient to control the arrhythmia, intravenous digitalization will always revert the rhythm to normal. Ventricular fibrillation is rare, but is more prone to occur in the large failing heart. Its appearance is first noted on the electrocardiogram, which is continuously monitored during every catheterization. The only effective treatment is immediate thoracotomy and direct defibrillation. It must be admitted that defibrillation is often ineffective in reverting the rhythm to normal because of the nature of the underlying heart disease. This complication is therefore usually fatal but is fortunately rare. Other complications reported are: (1) perforation of the heart by the exploring catheter (usually through a recent unsuspected patch of myocardial infarction), or by radiographic dyes injected under pressure for angiocardigraphic study; (2) intracardiac knotting of the catheter, requiring surgical removal;³ (3) embolization by air or blood clot;² (4) infection,⁴ either systemic or local. Regarding this last complication, it has been recommended that before catheterization the patient be protected by administration of antibiotics.⁵ However, these have not been used in the last 50 catheterizations performed in this institution, and there has been no incidence of infection. Strict asepsis is maintained throughout the procedure and antibiotics do not seem necessary. On the whole, complications are rare unless the patient is very ill at the time of study, and then the risk of proceeding with the catheterization must be weighed against the possible benefits of eventual surgery.

There exist a few contraindications to cardiac catheterization, only one of which is absolute, and that is in the patient with recent myocardial infarction. This is usually a rare event in the age group who undergo catheterization, but may occur. Cardiac catheterization in the face of a recent infarction is dangerous, as the catheter may penetrate the softened area of infarction and lodge in the pericardium, resulting in acute pericardial tamponade when the catheter is removed. Serious arrhythmias are also prone to occur in the face of a recent infarction. In any event, catheterization after a recent infarction would serve no useful purpose, as surgical correction of whatever defect existed

would of necessity be delayed until some months after the date of infarction.

The other contraindications to study are only relative, as catheterization may be undertaken in the face of these contraindications if these cannot be removed despite a vigorous medical program. Congestive cardiac failure is one of these relative contraindications, and when present the patient should be digitalized and given a diuretic and a salt-free regimen for several days before catheterization. In the presence of a failing heart, pressure determinations may be misleading. Systolic pressures proximal to an obstruction may fall when the heart fails and allow one to conclude that the obstruction is not as serious as in fact it is. Also the presence of congestive failure increases the risk of serious arrhythmias during the procedure, but this risk may have to be accepted if the failure cannot be cleared. Active subacute bacterial endocarditis, serious arrhythmias and pregnancy, as well as co-existing infectious diseases, are all relative contraindications to immediate study. Although seriously ill patients are accepted for study, the obviously moribund patient is not a candidate. The reason for this is that the very low cardiac output present in these patients leads to pressure and oxygen determinations that are totally unreliable and the data obtained are very apt to be misleading.

The age or weight of the patient by itself does not influence his acceptability for catheterization. Infants of a few days of age are as easily catheterized as the older individual. Indeed, in many ways, catheterization of the infant is a much simpler procedure. The smallness of the heart size in infancy allows for greater ease in the manipulation of the catheter into the various heart chambers, and the lack of nervousness in the infant makes him a much happier subject for catheterization than the adult.⁶

It is important if one is to obtain a satisfactory study that the physician concerned have knowledge of the possible diagnoses in the patient to be catheterized. It is imperative that the operator take a personal history from the patient or relatives and that he examine the patient, his electrocardiograms, x-rays, and other available laboratory data. Cardiac catheterization performed without knowledge of the clinical picture is to be strongly condemned, as it too frequently produces erroneously interpreted data. Patients are usually asked, therefore, to enter the hospital 24 hours before the study for this preliminary work-up.

Since general anesthesia is never used in this institution during catheterization, it is of the utmost importance that the patient be rendered as calm as possible. Anxiety leads to undesirable arrhythmias and to spasm of the vein around the catheter. Once venous spasm has occurred, catheterization becomes extremely difficult, as the catheter can only be advanced or retracted with much force on the

part of the operator and with much pain to the patient. Before catheterization, much time is taken to reassure the patient, to explain the procedure in detail, and if the patient is a child, to show him the catheter room the day before the study and to answer all his questions about x-ray equipment, etc.

General anesthesia is not used here for several reasons. The first and most obvious is that it is not necessary. The procedure is completely painless, except for the venous cut-down, and this is adequately managed with local anesthesia. The only unusual sensation that the patient may experience during catheterization is the "flip-flop" sensation of the occasional extrasystole, and this is not frightening if the patient has been forewarned. Premedication with morphine or meperidine (Demerol) and sodium phenobarbital, plus the presence of quiet and gentle personnel, will usually render co-operative even the child in his "terrible twos". The second and more important reason for dis-favouring general anesthesia during cardiac catheterization is that it alone presents a hazard to many cardiac patients. This is especially true in patients with cyanotic heart disease. Where general anesthesia is used for catheterization procedures the mortality and morbidity of catheterization rise significantly. Thirdly, under anesthesia, the co-operation of the patient necessary to obtain data during exercise, Valsalva maneuvers, etc., is lost.

One hour before the study, the patient is pre-medicated. One of the simplest premedications is morphine sulfate and sodium phenobarbital, the dosage varying according to the body weight. If there is any suspicion that the patient may have pulmonary hypertension, meperidine (Demerol) is substituted for morphine, because morphine, which can increase pulmonary resistance, may worsen the hypertension and has been responsible for the occasional death of a patient.

Once in the catheter room, the patient is positioned on his back on the fluoroscopy table, and electrodes are placed on his wrists and ankles for continuous electrocardiographic monitoring. Under strict aseptic technique, the skin over the desired vein is cleaned and the area draped for the cut-down. The vein chosen is usually the arm or basilic vein in adults, and the leg or saphenous vein in children. Any patient suspected of having an interatrial septal defect is catheterized from the leg because of the ease with which the exploring catheter can be made to cross the septal defect into the left atrium when approached from below. Under local anesthesia, the skin is incised, the vein located and incised, and an appropriate-sized catheter introduced. The catheters are flexible and radio-opaque. Under x-ray control, the catheter is pushed up the vein to the right atrium. The x-ray apparatus may be the simple fluoroscopy unit or the newer, more complex image intensifier. An image intensifier permits excellent visualization with less radiation hazard to the patient and to the

personnel, and allows one to see well with only subdued lighting in the room.⁷ This presence of light in the operating room is much less frightening to a child than the total darkness necessary with conventional fluoroscopy, and speeds up the procedure considerably.

Once in the right atrium, the catheter is manipulated into the right ventricle and into the pulmonary artery. It is then advanced out one pulmonary artery and wedged out as far as possible into one lung field. This last position is called the pulmonary artery wedge, or the pulmonary capillary wedge position, and pressures obtained from this area are felt to represent closely those pressures in the left atrium. After pressures from this pulmonary artery wedge position have been obtained, the catheter is then gradually withdrawn in stages, with pauses to obtain pressure recordings and small blood samples from each heart chamber and great vessel entered.

Many instruments for recording intracardiac pressures are available at various prices, and range from the simple saline manometer to the highly complicated electronic systems. Some form of electronic apparatus is usually employed to convert the hydraulic pressures of the blood to visual records, which can be viewed directly during the catheterization on an ocelloscope; this can be photographed for permanent recording.

After all blood samples and pressure recordings have been obtained, the catheter is made to explore the interatrial septum. In about 50% of infants the catheter will then enter the left atrium through a probed patent foramen ovale or through an interatrial septal defect.⁸ With luck the catheter may even slip into the left ventricle from this position. When all this has been completed and unusual catheter positions have been rechecked, the lights are turned up in the catheter room and the blood samples examined. During the course of the catheterization a series of 3 c.c. to 5 c.c. blood samples will have been removed from each area of the heart explored. This will usually result in from 6 to 20 blood samples. Each sample is aspirated from the catheter into especially prepared oiled and air-tight syringes to which a drop of heparin for anti-coagulant effect has been added.

Since all blood samples obtained from the right side of the heart have roughly the same oxygen saturation, i.e. all bloods obtained from the right side of the circulation are about 70% saturated with oxygen, all blood samples taken from the right heart should have the same dark blue colour. If at any level, highly oxygenated or left-sided blood enters the right circulation, as would be the case in an interventricular septal defect shunting blood from the left ventricle into the right, then the bloods taken from the chamber receiving the shunt would appear much redder and brighter than its neighbours, because of its higher O₂ content.

Although gross left-to-right shunts are visible to the naked eye, smaller degrees of shunting can only

be detected by laboratory analysis of each blood sample for oxygen content.

If visual inspection of the blood samples is satisfactory, an arterial sample is obtained (usually by direct puncture of the femoral artery), and the samples are sent to the laboratory for quantitative oxygen analysis.

At this stage in the catheterization procedure, all the available data are quickly reviewed, and if the diagnosis appears clear, the procedure is terminated. If any doubt still exists, and this is usually so in the group of cyanotic patients, it may then be advisable to obtain selective angiocardiograms.

The catheter is advanced into the desired chamber, the patient is positioned, and a warmed, radio-opaque dye is injected under pressure into the heart. Simultaneously, rapid x-ray pictures (the speed varying from 4 to 12 frames per second) or cine pictures are taken of the dye as it passes with the blood flow through the heart and central vessels.⁹ Angiograms may be repeated after a 15-minute delay in other areas to map out completely the inner anatomy of the heart. The subject experiences only momentary intense heat as the dye is injected, and this rapidly passes off. A good angiogram may reveal many important data which might not be otherwise available, and is invaluable in the diagnosis of such cyanotic conditions as truncus arteriosus, tetralogy of Fallot and transposition of the great vessels.

After the catheterization and angiograms are completed, the catheter is removed, the vein ligated and the skin repaired with a suture. The whole procedure takes anywhere from half an hour to four hours, depending on the size of the heart and the complexity of the defect. The great majority of catheterizations require one hour, with an average fluoroscopy time of eight minutes.

Most patients are allowed to leave hospital on the afternoon of the study, and the skin stitch is removed in four or five days. There is rarely any discomfort at the cut-down site, and children are at school and riding bicycles the next day.

The procedure described is the routine one of right heart catheterization. It is sufficient to diagnose most cases of congenital heart disease. Occasionally, when the cardiac defect lies wholly on the left side of the heart, as would be the case in aortic or mitral valve stenosis, the right heart catheterization, as described, will not give the desired diagnostic information. In such a situation one of the so-called left heart catheterizations will have to be employed.

In children with aortic stenosis, the safe retrograde left heart catheterization may be attempted.¹⁰ In this procedure, the catheter is introduced into a peripheral artery, usually the brachial, and threaded in a retrograde fashion against the blood flow to the aortic valve. In approximately 90% of children the catheter can then be made to cross the aortic valve and enter the left ventricle, where

pressure measurements can be obtained. It is rarely possible to accomplish a successful retrograde left heart catheterization in the adult using a simple catheter.

In adults, the large sinuses of Valsalva at the aortic root seem to catch the catheter and prevent its entrance into the left ventricle. The catheter repeatedly slips into the coronary orifices instead of down into the left ventricle.

Dotter of Oregon¹¹ has reported remarkable success at retrograde left catheterization in adults. He uses a spring type of guide wire, but this method has not yet been attempted at this institution.

Usually, in an adult, left heart catheterization is accomplished by means of direct left atrial puncture.

Several methods of direct left atrial puncture exist that aid in the diagnosis of left-sided disease in adults. The most popular of these methods is the transthoracic left heart catheterization, perfected by Viking Björk.^{3, 12} In this procedure the prone position is assumed by the patient, and a suitable site for penetration of the left atrium is determined fluoroscopically. This site is usually in the ninth interspace, two fingers' breadths to the right of the dorsal spinous processes.

After local anesthesia of the skin has been obtained, an 18-gauge, thin-walled needle, 15 cm. long, is inserted at an angle of 28° with the vertical in the coronal plane. When the needle is thought to have passed the spine, its position is again checked fluoroscopically. If all is satisfactory, the needle is advanced to the left atrium. When the atrium is reached, pulsations are transmitted to the advancing needle, and the wall of the atrium is felt to invaginate for several centimetres before the definite snap of penetration is felt. Pressure tracings are immediately obtained to identify the chamber penetrated.

A small polyethylene catheter is then threaded through the needle into the auricle and is carried by the blood flow into the left ventricle and in one-third of instances, the aorta, and pressure tracings are obtained. After all the data are obtained, the needle and polyethylene catheter are removed, and the patient is returned to his room, where he remains for 24 hours for observation.

The risks involved in this method of left heart catheterization, although higher than for a simple right heart, are not prohibitively high. Small hydrothoraces or pneumothoraces are frequently produced if the needle penetrates the lung in its passage to the left atrium, but these are usually asymptomatic, and found on the routine post-catheterization chest film. They usually require no treatment and can be disregarded.

Transient hematemesis and dysphagia are occasionally produced by needle puncture of the esophagus.

Chest pain of pericardial origin may also be troublesome for a few days after the procedure. When a patient is operated upon after left atrial

catheterization, 30-50 c.c. of reddish fluid or frank blood is usually found within the pericardium.

The greatest risk of left heart catheterization, using the right transthoracic approach to the left atrium, lies in the possible puncture of the base of the aorta as it lies within the pericardium. If the aorta is punctured intrapericardially, the resulting brisk bleeding may lead to fatal pericardial tamponade. Great precautions must be taken to approach the left atrium low in the cardiac silhouette if the base of the aorta is to be avoided.

There have been no deaths in a personal series of 113 patients subjected to the procedure.¹³

The usefulness of left-sided catheterization in the preoperative assessment of patients with mitral and aortic valvular disease is well established. However, because of its risk, it is recommended only when very definite questions exist concerning the diagnosis. It is most frequently employed in evaluating the patient with mitral stenosis who is being considered for commissurotomy and in whom there is a suspicion that some degree of mitral insufficiency or of aortic valvular disease exists also. Here, left heart catheterization would determine whether mitral insufficiency was present, and if so, whether it was of sufficient severity to overshadow the stenotic element and render closed surgical commissurotomy valueless and dangerous.

The instruments and techniques employed in cardiac catheterization have recently been employed in the study of other organs. Especially prominent among these is the liver. Portal pressures can be indirectly measured by means of hepatic vein wedge pressure measurements. These determinations aid in the evaluation of the patient with cirrhosis of the liver.¹⁴ Studies of the cerebral¹⁵ and renal circulation¹⁶ are also emerging from the strictly academic realm.

Although cardiac catheterization is a relatively safe, easy and important procedure in the diagnostic work-up of many cardiac patients, it is not recommended that it be undertaken indiscriminately in every patient with a heart murmur. Often where the diagnosis is obvious on clinical grounds, as in typical cases of patent ductus arteriosus or coarctation of the aorta, catheterization is unnecessary, and proper treatment can be instituted with confidence without catheterization studies.

In infants, however, it is well recognized that the younger the child, the more difficult becomes the diagnosis of his lesion by clinical means alone. There are many reasons for this, the most important among them being that the younger the infant, the greater likelihood that the anomalies are multiple and complex. There is a gradual weeding-out process through the first months and years of life, so that by the age of two or three years, usually infants with the simpler, more easily diagnosable defects have survived. Empirical waiting until the patient reaches the age of two for diagnostic study will leave for study only children who have already proved the relative innocence of their lesion by

surviving to their second birthday. Others, who might have been saved by proper treatment, will have died.

In conclusion, the relative safety of cardiac catheterization, and its great value as an aid in the diagnosis of heart disease, especially of the congenital or rheumatic variety, should be emphasized again. The cardiac lesion can be diagnosed and located with certainty by cardiac catheterization and angiograms, and the surgeon can then proceed directly to the source of trouble with every confidence that there will be no unpleasant surprises in the form of unrecognized, associated defects.

Where surgery is not indicated, either because it is unnecessary or because no operation as yet exists for the particular lesion, then relatives and patient at least have the benefit of an accurate diagnosis, and neither they nor their family physician need be troubled by the worrisome thought that perhaps something further could or should have been done. Settling the question in every-

body's mind leads to a certain confidence and renders easier the future management of the cardiac patient.

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SPECIAL ARTICLE

THE USE OF THE PROJECT METHOD IN INTEGRATED TEACHING*

ALEXANDER ROBERTSON, M.B., D.P.H.,†
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THE DEPARTMENT of Social and Preventive Medicine, University of Saskatchewan, has two distinct, though not separate, functions. The first, like that of any department of a medical school, is to contribute a share to the educational experience of the medical school (training, as it is generally accepted today to be a "basic physician") drawn from that field of knowledge with which the department staff has supposedly special familiarity. The second is a somewhat special role of helping the student to apply and to understand things which he has learned from other disciplines to "man in his social state".¹

One technique used in the department in order to fulfil the second role is called "The Third Year Study Project". This is a group exercise, undertaken by groups consisting of three to five students, during the 16-week period that they are with the department in the third year of the four-year course, each group under the supervision of one faculty member from the Department of Social and Preventive Medicine and one from one of the other clinical departments.

OBJECTIVES

The stated objectives to the student of the project are:

1. To encourage you to ascertain and describe means of preventing disease.
2. To encourage you to become aware of sociological problems associated with disease, and to relate these to your clinical experience in the hospital and elsewhere.
3. To help you become aware of the role of the family doctor and his colleagues in the health team in handling these problems.
4. To help you become familiar with the application of the epidemiological method in the study of the prevention of disease.

Although not so set out in the outline of the project which is given to the students, there is quite a strong feeling on the part of the faculty from both this department and others that an additional objective is concerned with helping the student who has made a comprehensive review of material relating to one disease group, so to present it to his student and faculty colleagues at the end of term that it is of value to them. This project not only improves the student's knowledge of the areas outlined in the stated objectives, it also makes him more capable of exploring libraries, becoming familiar with community activities, and, finally, making a coherent and intelligible report. So many activities in medicine in later life will call upon him to make reports, to present cases at conferences, to promote arguments at meetings, that we consider this function an important one.

*Address to the Section on Medical Education, 35th Anniversary Congress of the Pan American Medical Association, Mexico City, May 5, 1960.

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METHODS

The outline of the project given to each student goes on as follows, under the heading of "Methods":

Your group of three to five students will be asked to use the reference material to which we shall direct your attention, with a view to producing one report which will answer the various questions which we have raised. Your report should, within the limitations of your knowledge and the time and resources available to you, come as near as possible to giving a complete picture of the disease group concerned, from the social point of view.

It will be your responsibility, as a group, to present this report to the whole of the class. All members of the group should participate in this presentation: any facilities which you require to illustrate your report, such as graphs, blackboard, tape recorder or slides, will be given to you within reason, provided you give us warning ahead of time.

During the time which is specifically allotted to these exercises in the timetable, you will be given a place in which to work and access to the departmental collection of reading and reference material. On the other hand, the nature of this exercise is such that we do not consider that it can all be performed in class time. Much of the information which you will want to give us will, we hope, come from your hospital experience and elsewhere, as suggested above.

Any students or groups who wish to visit agencies concerned with the subject under study should make their request by the end of the first quarter. Each group will have a tutor, who will be a member of the staff of this department, and arrangements will be made for appropriate consultation with members of other departments.

CHOICE OF SUBJECT

Choice of subject is made primarily by the group themselves, though they must clear their choice with their tutors before embarking on their work. Usually they are given the opportunity of considering this some weeks before they come into our department. Little difficulty is experienced in having each group become enthusiastic about one particular topic. Recent examples of topics chosen by groups are as follows: diabetes mellitus, glaucoma, illegitimacy, leukemia, mongolism, multiple sclerosis and radiation hazards.

It will be noted that, while most of the topics are concerned with diseases or disease groups which are identifiable in the International Statistical Classification of Diseases and Causes of Death, from time to time topics such as "illegitimacy", which are more in the nature of "social problems", are selected. It will be seen that the questions that are set may be more difficult to answer in relation to a topic of this kind: nevertheless, they have certain special values from the point of view of education and understanding.

REFERENCE MATERIAL

Each group is supplied with copies of the Annual Reports of the local city and provincial Depart-

ments of Public Health, the Department of National Health and Welfare, the Provincial Hospital Services Plan and similar material. They are given guidance in familiarizing themselves with other basic statistical and epidemiological information such as the invaluable British Registrar General's Decennial Supplement on Occupational Mortality; "Sources of Morbidity Data" (U.S. Department of Health, Education and Welfare); The Inventory of Social and Economic Research in Health (Health Information Foundation); and the new, though still all too slim, "Selected Canadian Public Health References of Epidemiological Significance" (Epidemiology Division, Department of National Health and Welfare).

BASIC QUESTIONS

To each group the same list of 10 questions is presented. It is expected that every group will attempt to answer every question in relation to its chosen topic. While it is recognized that some questions may be easier to answer or more relevant in the case of some conditions than others, we feel that it is as important, for example, that students should know that there is a lamentable lack of morbidity data on the topic of neurological diseases, or a relative paucity of information on the role of illegitimacy in infant mortality, as it is for them to be able to answer, from the pages of a statistical publication, figures on the age, sex and other mortality patterns of carcinoma of the lung.

The following are the ten questions which are posed to each group:

1. (a) What was the crude death rate from this disease in (1) Canada, (2) Saskatchewan, (3) Saskatoon, in the year under study? (b) Describe any change in the incidence of death from this disease group in recent years.

2. What are the patterns of morbidity due to this disease in the above communities?

3. How does the likelihood of suffering or dying from this disease vary with each of the following conditions? Please give reasons for your answer and statistical evidence for your statements, with reference to the source of your evidence. (1) Age, (2) Ethnic group, (3) Geographical situation, (4) Marital state, (5) Occupation, (6) Race, (7) Religion, (8) Residence . . . rural or urban, (9) Sex, (10) Social class. Tables, graphs, histograms and other appropriate methods must be used to illustrate this answer.

4. What is the cost of this disease: (a) to the community? (b) to those who suffer from it?

5. Describe any cases of this disease which you have seen and relate your description to your findings in the above questions.

6. Describe any specific preventive measures which are applied to this disease. In particular, what special services exist for its control in

(a) Canada?

(b) Saskatchewan?

Discuss the services used in

(1) England,

(2) United States,

(3) An under-developed country.

7. Describe the role of

- (1) the family doctor,
- (2) the specialist,
- (3) the medical health officer and his staff,
- (4) the medical social worker,
- (5) other community agencies, voluntary and otherwise, in the control of this disease, paying special attention to the ways in which these members of the health team can best communicate with each other and work together.

8. In the course of your investigation you will have read many studies relevant to this disease. Criticize the methodology used in these studies.

9. It is unlikely that you will have been able to find completely satisfactory answers to all the questions dealt with in this project. In one area which you consider to be inadequately covered by present knowledge you are asked to make specific suggestions for the design of research to fill the gaps.

10. One final word. In a few months' time you will be doing your general practice preceptorship. When that time comes you will almost certainly have opportunities of contributing to your existing knowledge of the areas covered by this project. In your report of your preceptorship we expect that you will be able to link these two experiences together.

CONCLUDING REMARKS

It will be seen that Questions 1 to 4 are concerned with the unearthing of social and epidemiological information. Question 5 attempts to establish the important link between this kind of study and the clinical practice to which the students have so far been exposed. Many of the groups, it should be noted, supplement the information which they have been able to find from published material, with data collected by themselves, on, for example, all the cases of the condition under study admitted to our university hospital during the preceding year. Others may take a random sample of 50 cases under their diagnostic heading or may review patients currently being seen on the wards in which they are working.

Questions 6 and 7 are concerned with services. In Question 7 we are particularly anxious that they may explore the relative roles of the different members of today's health team in the care and control of disease.

In Questions 8 and 9 we are trying to deal with one all-too-common fault of medical students and doctors, that of believing everything which they see in print. While criticism of published statistics may not play an important part in the final report presented to the class, alertness to criticism and to faulty methodology is stressed by the tutors throughout the four months of work on this project.

Question 10 provides the link outwards into their community experience in general practice. All students in this medical school must spend a minimum of two weeks in rural general practice. This experience is described as being "not primarily for clinical experience, but rather to give first-hand acquaint-

ance with the health problems of a community. . . ." One of the topics upon which the student must write a compulsory report at the end of his preceptorship concerns the way in which a case of the condition which they have studied in their third-year project would have been handled in the community in which they have studied during their summer preceptorship.

Those of us who have been concerned with this approach to integrated teaching during the last two years are satisfied that, while as in all evolving teaching techniques there is room for much improvement, it is of considerable value. By and large the objectives set out at the beginning appear to be achieved. The enthusiastic interest of the students and of faculty from other departments has been of the greatest help to us in promoting and developing this approach.

The author wishes to express his gratitude to all the members of his own staff who have made this complex and time-consuming teaching method a possibility and a reality; to the 17 general practitioners who are preceptors; to the dean of medicine for encouragement in promoting this approach to teaching; and to faculty members from practically every other clinical department in the medical school who at various stages and phases have collaborated with advantage in the achievement of our objectives. He also acknowledges with gratitude the help of his former colleagues in the Royal Free Hospital School of Medicine, University of London, with whom for three years the same teaching approach was experimented and evolved: as well as that of Professor John Pemberton, formerly of the Department of Social Medicine at the University of Sheffield, upon whose "Epidemiological Exercise" the concept of this project was built up.

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THE LANGUAGE OF SCIENCE

Prerequisite to a higher degree in each of the sciences and professions is a highly specialized vocabulary with which we can speak very precisely and with great efficiency to our colleagues—and with utter incomprehensibility to the layman or to our peers in other fields of specialization.

Extensive reading of professional or technical journals is required to remain conversant in our chosen field. If we accept responsibility for extending the bounds of knowledge we must use that language in reporting our findings to our colleagues. Small wonder that it becomes increasingly difficult to speak or to write without using that vocabulary.

In each of the disciplines and especially in the field of medicine, however, the solution of many of our most compelling problems depends upon enlisting the talents of other specialists and the sympathetic understanding of the public. And that cannot be done without speaking in non-technical terms. This should not, however, necessitate over-simplification, sensationalism, or stooping to that hypothetical 13-year-old mentality.

Such writing is hard to do and time is at a premium, but a clear, non-technical statement of what has been done and what is contemplated must at some point be made if the diverse talents and the funds required for any fundamental undertaking are to be marshalled.—*The Bulletin—Dow Corning Center for Aid to Medical Research*: October, 1960.

CASE REPORTS

SPOROTRICHOSIS TREATED BY GRISEOFULVIN—A FAILURE

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SPOROTRICHOSIS is a fungal infection caused by *Sporotrichum schenckii*, one of the deep mycoses. The disease is manifested by a primary chancre at the point of entry of the organism. This is followed by the development of subcutaneous nodules along the course of the lymphatics draining the area. In the majority of cases the disease remains localized to the superficial lymphatics.

A 57-year-old truck driver had been in good health until early August 1959, at which time he injured the pulp space of his right third finger. The injured area appeared to be healing normally. However, about two weeks later he suffered a further injury, running a thorn into his finger while pulling out some raspberry bushes. Within a few days the previously injured area broke down, forming a chronic indolent ulcer with a rounded indurated margin. He treated this by hot soaks but it showed no tendency to heal.

A month after the development of this lesion, multiple painless nodules appeared beneath the skin of the right arm. These began on the dorsum of the hand and spread proximally in a linear pattern which paralleled the veins. At first these were firm and rubbery in consistency and mobile under the skin. Later they became fixed to the skin, and one on the forearm broke down, discharging serous fluid. As increasing numbers of these nodules appeared along the course of the veins, he consulted his family physician, who referred him to the Toronto General Hospital for investigation on October 18, 1959.

A diagnosis of sporotrichosis was made. Cultures were taken from the ulcerated area and these subsequently grew *Sporotrichum schenckii*. Section of two of the nodules removed from the upper arm showed a non-specific granulomatous inflammation. No fungi could be demonstrated.

The successful use of iodide therapy had been reported in many of the published cases of sporotrichosis. However, its efficacy was questioned on the basis that the improvement seen might have occurred spontaneously in the natural history of the disease. For this reason no iodide was given initially and the patient was carefully followed up for another month. Over this period his condition did not change remarkably. Several of the skin lesions broke down but few new nodules developed. The ulcer on his finger remained unchanged.

At the international conference on griseofulvin in Miami, October 1959, Latapi¹ reported a good response in eight cases of sporotrichosis, treated by this new antibiotic. On the basis of this report it was decided to treat the patient with griseofulvin.

Beginning in October 1959, he was given six tablets (250 mg. per tablet) per day for ten days, and then

four tablets per day for ten days. On this regimen new nodules appeared in the line of the old, and the condition spread unchecked. In November 1959, griseofulvin was discontinued and potassium iodide, 10 drops of saturated solution thrice daily, was begun. The patient was instructed to increase the dosage by one drop each dose until he was taking 40 drops thrice daily.

When seen one week later he was taking 28 drops and no new lesions had developed. After two weeks of potassium iodide therapy—dosage now 40 drops thrice daily—the new lesions which had developed while he had received griseofulvin had disappeared and the large nodules were less inflamed and tender, and smaller in size.

Since the patient had developed a mild gastric upset, presumably owing to the large dosage of potassium iodide, he was given milk of magnesia, two ounces four times daily, which relieved his distress. The treatment was continued.

By the end of the third week all nodules had disappeared, leaving only superficial erythematous plaques about 1 cm. in diameter. The dosage of potassium iodide was reduced to 20 drops thrice daily and continued at this level till January 12, 1960, when it was again cut in half. It was finally discontinued on January 26, when all activity seemed to have subsided.

On March 29, the patient was again seen, at which time he was complaining that one lesion on the mid-forearm had enlarged and drained on several occasions. Twenty drops of potassium iodide twice daily was administered and continued till June 14, at which time the lesion had healed.

SUMMARY

A patient with sporotrichosis has been carefully followed up. Over the first three months of his illness there was no spontaneous improvement. While the patient received griseofulvin therapy, the disease progressed.

Potassium iodide therapy resulted in remarkable improvement within three weeks and apparent cure after three months, when therapy was stopped. One subcutaneous lesion recurred two months later and responded well to further iodide therapy.

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A GREAT PERSONALITY

Last week we announced with regret the death of the famous plastic surgeon Sir Harold Gillies. Like Sir Archibald McIndoe, who also died recently, Sir Harold was a New Zealander but his life had been spent in England.

In his profession he had very advanced ideas and also carried advanced ideas into the game he loved—golf . . . and he was never slow to state his views on various aspects of golf. When on the course and particularly in cold weather he wore assorted clothing and usually carried a drain pipe bag slender enough to delight the eye of Henry Longhurst, the great advocate of the "drain pipe".

Sir Harold was a Cambridge blue and also played for England. The amazing point about his appearance for England was that he played in 1908 and then not until 1925-26. He was a charming man of great personality.—T.S., in *Golf Illustrated*, September 22, 1960.

*Research Fellow, Ontario Heart Foundation.

LIPODYSTROPHY RESULTING FROM INSULIN INJECTIONS: TREATMENT BY COCONUT OIL INJECTIONS

SOLOMON GOLD, M.D., *Montreal*

REPEATED insulin injections in a localized area often result in a reduction in subcutaneous fat in that region. The type of insulin used does not seem to make any difference.

Mrs. S.Z., aged 50, with moderately severe and refractory diabetes, had been under treatment with diet and insulin for the previous 30 years. In 1954, she came to my office complaining of the "ugly appearance" of her thighs. She was advised to change the site of insulin injection. In 1957, she returned with the same complaints. The thighs had not appreciably changed.

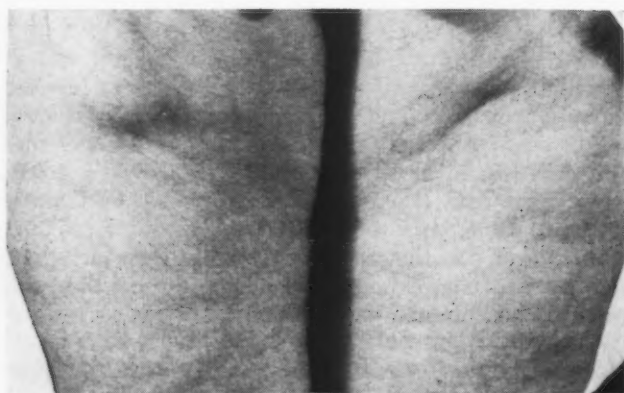


Fig. 1a.—Photograph taken on October 31, 1957.

There were deep depressions of the skin in the middle third of both thighs, extending downwards and inwards as furrows about six inches long. The depth of the indentations was between $\frac{1}{4}$ and $\frac{1}{2}$ inch. The affected skin was thin, relatively hard, wrinkled and darker than the surrounding normal skin. The patient did not complain of physical discomfort as a result of the local fat atrophy.

Treatment consisted of injections of coconut oil under the atrophic skin. Coconut oil was chosen because it is semisolid at warm room temperature, is a safe edible fat, and boils and cools easily. After boiling, the liquid is allowed to cool to skin temperature or slightly above; this can be ascertained by testing with the hand the temperature of the syringe filled with the coconut oil. The range of safe temperature difference is quite wide, and the margin of safety is considerable.

An injection of the liquified coconut oil under the atrophic skin is carried out in the usual manner. The amount of oil injected will depend on the degree of the depression. In general, enough oil is injected in the various depressed areas to make them level with the adjacent skin. A 20-gauge needle is quite satisfactory. After withdrawal of the needle, a collodion dressing is applied over the puncture made by the needle and allowed to remain for a day.

The patient did not complain of discomfort immediately after the injection. However, within a day or two, a local reaction, manifesting itself as a slight discomfort and by redness and heat, ensued, but it did

not require treatment and subsided completely within a week.

Six weeks after the initial injection there was a slight regression (Fig. 1a). Another injection was then given under the partly depressed areas. The patient was advised not to use the thighs for her insulin injections. Fig. 1b, taken about two and a half years after the second injection, shows that there has been a diminution in the defect, apparent after two and a half years without treatment.

On May 2, 1960, the treated skin was thicker, softer and smoother than before treatment.

Two patients with the same condition, but of a milder nature than in the case described, were treated by two injections at monthly intervals. It is now over two years since the last injections were given and the improvement in these cases is quite obvious.

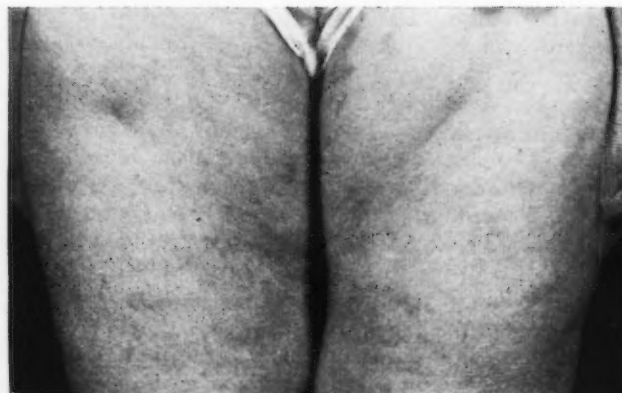


Fig. 1b.—Photograph taken on May 2, 1960.

Unfortunately, no photographic record is available of the defect before treatment was initiated.

SUMMARY

Sterilized coconut oil was injected under the skin where a marked atrophy in fat had resulted from repeated injection of insulin. Two and a half years after the last treatment, an appreciable amelioration in the defect is observed.

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THE PATIENT'S VIEWPOINT

Three cheers and a triple boom of the bass drum to the doctor who wrote recently in a medical journal that doctors should be more considerate of their patients' time. The doctor who wrote the piece feels that his colleagues are downright rude sometimes. "Often," says he "their time is just as important, and schedule as pressing as the doctor's."

How many doctors have patients wait an hour past the precise time they were booked for an appointment? Plenty! The same holds true for dentists. As for us, our sawbones has never been on time but we have never minded. It's good for the soul to sit and watch others with bigger problems and more ills. The wait is rewarding in the realization that life after all is pretty nice.—*Windsor (Ontario) Star*.

MEDICAL ECONOMICS

IMPLICATIONS IN THE EXTENSION OF DIAGNOSTIC SERVICES, AS INSURED SERVICES, TO OUTPATIENT DEPARTMENTS*

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WHEN ONE talks about any proposed change in benefits to insured persons under the Hospitalization Insurance Plan, it is well to sit back and assess the proposal from three points of view: the hospital, the patient, and the physician. This paper will present the author's assessment of this as yet hypothetical proposal from these three points of view.

THE HOSPITALS

The hospitals are on record as requesting that every service they render to insured patients should be paid for by the Hospitalization Insurance Plan. That being so, the suggestion that all diagnostic services be insured services, whether inpatient or outpatient, would not disturb the hospital policy-makers. It might disturb the administrators, who would have to contend with the provision of facilities and personnel to meet the extra demands in those areas where presently a considerable percentage of such work is done in the private offices of physicians.

In Newfoundland, where all radiological and pathological laboratories are in hospital, the insuring of these diagnostic services in outpatient departments has not created any problem; nor would it likely do so in New Brunswick, where the same situation pertains; nor has it in Nova Scotia, where the one private specialist in radiology was considered an "other facility" (in Bill 320 a "hospital" means a hospital or other facility), and had the service he provided paid for by the insurance plan.

In the larger provinces, where more diagnostic services are provided in the private offices of both specialists and general practitioners, the sudden insuring of these services at outpatient departments only would create the problem referred to, namely, provision of facilities and personnel to handle the extra outpatient department load while at the same time continuing to provide adequate service to inpatients.

The extra facilities and staff required would not be limited to the areas providing the diagnostic services. Patients seeking these services would look to the hospital more and more for services of all kinds, both in an emergency and on a regular basis.

Proponents of insured outpatient services have argued that these would relieve pressure on inpatient beds. In many areas of the country the pressure on inpatient beds is such that any relief would be welcome. However, I have never seen any statistics to substantiate the statement that the insuring of outpatient diagnostic services would relieve pressure on inpatient beds.

The anticipated relief of pressure does not occur, apparently because, as the indication for hospitalization

to obviate payment for diagnostic services is lessened, other indications, perhaps as tenuous in their validity, take their place. The answer would appear to be rather in the education of both patient and doctor by alert, conscientious admission and discharge committees.

PATIENTS

In those provinces or areas where the only provision for diagnostic services is the community hospital, there would be no problem except that there would be no incentive for private practitioners to give patients better service by installing equipment in their offices. The dampening of incentive in this one direction could eventually be reflected in a more casual interest in patients' welfare, with resultant less efficient patient care.

In provinces or areas where there are facilities in both hospitals and private offices, patients would feel obligated to obtain the service at the hospital rather than a private office, if one was "free" while the other required a cash outlay.

In areas where the only facilities are not at the hospital, the patients would feel as if their premium was charging them for something the plan could not deliver. There is now, of course, inequality of benefits in various areas of the provinces, and I imagine there will be for many years. The extension of the plan to outpatient departments would result in pressure to have all hospitals provide the facilities and personnel to make the benefit available whether or not it was economically sound.

The lack of a concerted demand by patients for inclusion of diagnostic services in the Hospitalization Plan is rather surprising when it is realized that patients are now subsidizing the Hospital Insurance Plan when they obtain insured diagnostic services as outpatients in those provinces where outpatient services are not insured. That is so because the cost of the department is part of the budget of the hospital and, as such, is paid for out of premium and/or government funds. When a patient receives, for example, a radiological service as an outpatient, the hospital charges the patient and this money is deducted from the budget of that department.

In some hospitals the amount of money so collected is sufficient to underwrite a large percentage of the cost of the whole department; so, in effect, the patients who get these services as outpatients are paying the cost of the services provided to inpatients. In other words, subscribers are said to underwrite the cost of the insurance plan through premium and taxes but are asked to subsidize it every time they pay the hospital for an outpatient service.

There is an implication that these services would be available without let or hindrance if they became benefits under the plan. This raises several questions. Is the financial outlay for these services sufficient to be a deterrent when they are required or is it in fact a deterrent against undue wastage? What would be the result if the hospitals had deducted from their budget collections, rather than charges, so that they could use some discretion in dealing with persons in the lower income groups who required these services?

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Whether these services would be more readily available would depend upon factors such as the decision to include as other facilities, specialists and general practitioners' offices, and the balance between demand and personnel with facilities to meet the demand.

DOCTORS

A. Staff Doctors Working in Diagnostic Departments

It has been generally agreed there is a maximum work load in supervising and interpreting diagnostic tests beyond which the quality of work suffers. The insuring of diagnostic services only if performed at the outpatient department of a hospital would create a problem, particularly if the work in the department was such that the maximum work load had been reached, or almost so. It is one thing to find suitable personnel in fields where there is an oversupply but a much more difficult one in the area with which we are concerned, where there has been a shortage for some time. The problem of equipment should not be difficult, but the finding of space for patients, equipment and staff might be another matter. If space, equipment, and personnel are not found, the pressure of demand at the outpatient department level does one or both of two things: (1) it creates a backlog at the outpatient department, which in time forces people to buy the service privately, and (2) interferes with the provision of good service to inpatients, who by being in hospital indicate some urgency to have their requirements met.

This situation in turn makes for unsatisfactory working conditions in the department, and a tendency for doctors to leave the hospital and establish private practice. The experience in British Columbia, where the number of private radiologists rose rapidly after the Hospitalization Plan came into effect, is a good example.

B. Specialists in Private Practice

These doctors may be in full-time or part-time practice. In any case, they are likely to have expended considerable sums of money in equipment, office leases, personnel, etc. If diagnostic services become available on an insured basis only at outpatient departments (by legislation forbidding other carriers to insure the same services), the number of patients willing to seek services from a private specialist would depend upon the ability of the outpatient department to meet the demand. If the office of the private specialist is considered an "other facility" and so paid by the insurance fund, the amount of service demand would be maintained or increased, and the only difference would be that the specialist would have to look to the plan rather than to the patient for payment of his account and would eventually have to negotiate his fee schedule with the plan and be subject to the rules and regulations laid down by the plan administration. It is almost inconceivable that any extension of the plan to outpatient departments would not look upon a specialist's office as an "other facility" and make the services rendered in it, insured benefits. It would be left with the specialists then whether to participate or stay outside the plan and deal directly with their patients.

C. General Practitioners

Letters from other provincial secretaries and a questionnaire submitted to members of the Ontario

Medical Association in 1959 indicate that general practitioners do a considerable amount of diagnostic work in their offices. The amount of training in the technique of these procedures and the training and experience in their interpretation varies widely, as does the complexity of procedures attempted. To declare general practitioners' offices "other facilities", so far as recognizing them under the plan we are discussing, would raise problems not easy of solution. The plan would either have to accept for payment every diagnostic service rendered by general practitioners or someone would have to say "you may do this but not that." It is obvious that the medical profession would not like non-professional people to make such a decision. On the other hand, the profession would likely be reluctant to do it. The alternative of having all x-ray and electrocardiographic records sent in with the accounts would be cumbersome and expensive.

The easy way out, from an administrative point of view, would be to exclude from benefit all diagnostic services rendered by general practitioners, by not recognizing their offices as "other facilities". To limit the definition of "other facilities" to specialists' offices would be unfair to many general practitioners who by dint of postgraduate courses and years of experience have become proficient. It would be unfair also to many patients who depend upon the services rendered by general practitioners in areas where no such service is available at the hospital.

The immensity of this problem as it relates to both specialists and general practitioners might be emphasized by the following figures, which are approximate but sufficient for the present purpose. These figures indicate a rough distribution between specialists and general practitioners who carried out the designated diagnostic services.

<i>Radiological Investigations</i>	<i>Specialist</i>	<i>General Practitioner</i>
Manitoba.....	15	20
Alberta.....	23	80
British Columbia.....	70	10
Nova Scotia.....	1	none
New Brunswick.....	none	

Ontario:

8% of doctors own x-ray equipment.

12% of doctors own fluoroscope (based on analysis of 1000 out of over 3000 questionnaires returned).

Quebec:

Probably more by non-specialists.

Pathological Investigations

Very few private laboratories but very many procedures of varying complexity performed in doctors' offices.

<i>Cardiological Investigations</i>	<i>Specialist</i>	<i>General Practitioner</i>
Alberta.....	20	40
British Columbia.....	180	200
Newfoundland.....	2	4
New Brunswick.....	10	6
Quebec.....	Large number	Quite a few
Ontario.....	18% of doctors	

I think it would be fair to state that the apparently large number of doctors having diagnostic equipment is due to the propensity toward group and clinic practice in many provinces. Five or six doctors working in a group might have a fluoroscope, an x-ray machine and an electrocardiograph.

As in most areas, there is a financial aspect, and I am not thinking of the doctor's income but rather the value of the equipment now in doctors' offices. From more than 3000 questionnaires returned in Ontario, information has been collated from 1000. The value of equipment reported by this number was \$656,585. Thus one can see what financial sacrifice would be involved in suddenly insuring these services only if they were performed in the outpatient department of a hospital.

While the terms of reference for this paper limit its subject to diagnostic services, I believe that we would be justified in looking at certain other implications as well. There is already a fairly well established trend towards making the hospital the medical centre of the community. There is little room for arguing against this policy when one considers seriously ill patients, or patients requiring services not readily obtainable at the doctor's office or the patient's home. It was suggested earlier that the insuring of diagnostic services only at the hospital outpatient department would result in patients' seeking many other services at the same place. In other words, this would speed up the trend for doctors to carry out more examinations and treatments of minor ailments at the hospital rather than in their offices. In my opinion the medical profession should take a long look at where it is going in this respect, because in the final analysis the profession must bear the responsibility for the development of this trend. Because hospital boards and administrators are willing partners does not relieve the doctors of their responsibility. I believe doctors should examine the present situation and any proposals which would intensify it, because in my opinion it is not sound from either a medical or an economic point of view. To elaborate, one might argue that it is in the patient's interest to carry out minor diagnostic and therapeutic procedures at the hospital where every facility is at hand, but I have been impressed by the lack of personal interest which soon develops under these conditions. This comes about because there is a tendency for the doctor to hand over to interns, nurses, and other members of the hospital staff, many of the services which, if rendered by him, would enhance the doctor-patient relationship, about which there has been so much discussion and apprehension. If the medical profession believes, as I think it does, that medicine is both an art and a science, it may be time to analyze this developing trend as it relates particularly to the art of medicine. I say *particularly*, because some evidence crosses my desk suggesting that the shunting of responsibility does not always enhance the scientific aspect of the patient's welfare. I would think, however, that the area of patient-doctor relationship is the one which is suffering most from this trend.

Is it economically sound to have minor diagnostic and therapeutic procedures performed at a hospital? I for one do not think that it is from the point of view of the patient, the doctor, or the community. Three economic factors are involved: time, transportation, and total procedure charges. Of these, the greatest, on analysis, might well turn out to be time. If one could assume (unfortunately one cannot always do so) that the ordering of a diagnostic procedure resulted from a history and examination of the patient, usually at the doctor's office, then think of the difference in wasted time for the patient, between that required to carry out the procedure in the doctor's office and that by

sending him to a hospital. Whatever else hospitals are, they must be about the biggest wasters of patients' time. If the doctor performs the procedure at the hospital, an additional amount of his time is also dissipated. The factor of transportation is self-evident, but I would like to point out that free parking at the larger metropolitan hospitals is rapidly becoming a collector's item (no pun intended). The total procedure charges are naturally higher because of the time and personnel involved.

There is one other implication in this proposal which must be considered. If there is patient need to have diagnostic services carried out at the outpatient department as an insured benefit, it should follow that the voluntary insurers are not covering a sufficient percentage of the population so far as that particular area of need is concerned.

I remember well my first meeting of the C.M.A. Council in Saskatoon in 1949, at which many hours of the day and night were devoted to hammering out a statement of policy. The mainsail of Association policy at that meeting was the role to be played by voluntary insurance. Provision was made for the addition of a small jib representing governmental support for certain indigent and near indigent groups. Now, eleven years later, we are asked to act as skippers and determine whether or not, when our craft enters the stream of outpatient diagnostic services, the wind and the water will be such that the mainsail should be lowered, folded, and put away, and dependence placed upon the jib alone. The very fact the Canadian Medical Association has this topic on the agenda for this meeting should stimulate those responsible for developing policy of the voluntary insurers to take a critical look at the part their plan or company is playing in this field.

We are all appreciative of the very rapid strides made by voluntary insurance since 1949. It is interesting to note that the rate of growth of the prepaid plans and that of insurance companies have been almost identical. While I believe that, in 1960, we have a more realistic view of the limitations of the voluntary insurers in trying to meet this area of need, I for one would like to see the ultraconservatism which has dominated the policy of too many of our voluntary insurers replaced by a more dynamic attempt to provide coverage for those presently uninsured.

So far as the prepaid plans and insurance companies are concerned, the result of insuring diagnostic services only at outpatient departments under a government plan would likely be their exclusion from the field, judging by previous legislation applicable to hospitalization; and as "diagnostic services" under Bill 320 includes interpretation, it would mean transfer of more medical services to a plan under government control and administration. There is some evidence to indicate this would not be greeted with open arms by the medical profession.

In summary, the implications are these:

1. The hospitals would be relieved of certain book-keeping procedures which are now a source of annoyance, as the charges made for these services are not left with the hospital but deducted from the budget.
2. The departments of hospitals involved in the provision of diagnostic services would experience some trying times as they attempted to get sufficient space, equipment and trained personnel to meet additional demands.

3. The public would welcome an announcement that these services were to be available as insured benefits. Continuing satisfaction would depend upon the ability of hospital departments to meet inpatient requirements and give satisfactory service to outpatients.

4. The fate of private practice by specialists, in the diagnostic field, would be determined by the ability of hospital departments to meet the need or by a decision to make specialists' private offices an "other facility" and so insure the services provided therein.

5. The fate of private practice by general practitioners in the diagnostic field would be determined by the regulations laid down and the ability and/or willingness of their patients to get services where they were insured benefits.

6. The insuring of these services only at outpatient departments would hasten the trend towards having more and more minor conditions treated at hospital and eventually lead to the insuring of those services when rendered there. The economic and medical soundness of this trend has been questioned.

7. Judging from what has happened in the field of hospitalization, the insuring of services in this area would become the prerogative of government to the exclusion of prepaid plans and insurance companies.

The author acknowledges with thanks the assistance and co-operation of his fellow secretaries of the Divisions of the Canadian Medical Association.

SHORT COMMUNICATIONS

PROPHYLAXIS AGAINST STAPHYLOCOCCAL INFECTION AMONG NURSES IN A GENERAL HOSPITAL*

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OWING TO THE increase in number and severity of the staphylococcal infections within the hospital in the past decade, our attention was drawn to the problem of their management. Treatment at best was a hodgepodge and varied considerably from one department to the next. In an effort to establish some sort of uniformity of management and to facilitate intelligent study of the problem, a committee consisting of a physician, a surgeon, a bacteriologist and a dermatologist was formed under the aegis of the department of dermatology. One of the first tasks of the committee was to try to establish a uniform system of treatment. In so doing, the use of toxoids and vaccines presented a problem.

It always seemed illogical to the dermatologist that the use of a vaccine could be of any value in the face of an extensive infection with live and virulent micro-organisms. In no other disease does one employ vaccines in the active phase of the illness. It occurred to us that if vaccines are of any value, they should be used prior to the acute infection. At this time we were encountering a fair number of staphylococcal infections among the

members of our nurses' training school. It was decided to attempt to build resistance to the infection among the probationary class before they became exposed to the hazards of the staphylococcal infections on the hospital wards.

OBJECT

The following study was instituted with the object of determining whether inoculations using a vaccine prepared from the prevalent hospital strains of *Staph. pyogenes* would decrease the incidence of infection among student nurses.

METHODS

Two hundred and forty-six student nurses entering training school in September 1958 and in September 1959 were used as subjects. Each group was divided into two sections, one receiving the vaccine and the other serving as control. The vaccine was given at weekly intervals in the following doses: 0.1, 0.2, 0.3, 0.5, 0.7, and 1.0 c.c. and thereafter at monthly intervals using 0.5 c.c. until a 12-month period had elapsed. A careful record of staphylococcal infections was kept, and, whenever possible, cultures and sensitivities were obtained.

The vaccine was a heat-killed vaccine prepared from young cultures (1×10^9 organisms/ml.).

The strains of *Staph. pyogenes* used were those most likely to be encountered by the nurses in their hospital duties. Three strains were selected:

1. "Hospital staphylococcus"—isolated from an infected wound.
2. "Pneumonic staphylococcus"—isolated from a patient with secondary staphylococcal pneumonia.
3. "Furunculosis staphylococcus"—isolated from a patient with chronic furunculosis.

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RESULTS

Class of 1958

During the first six months there were four infections in the control group and none in the inoculated group. However, by the end of the first year there were six in the inoculated group and five in the control group. At the end of 21 months there had been 11 infections in the inoculated group and seven among the controls.

TABLE I.—NUMBER OF INFECTIONS IN CLASS OF 1958

	Inoculated group (62)	Control group (62)
1st 6 months.....	0	4
1st 12 months.....	6*	5*
21 months.....	11*	7*

NUMBER OF INFECTIONS IN CLASS OF 1959

	Inoculated group (62)	Control group (60)
1st 6 months.....	3	2
1st 9 months.....	7*	2*
Total of both groups.....	18	9*

*Cumulative totals for period indicated.

Class of 1959

In the first nine-month period there were seven infections in the inoculated group and two in the control group. The location of the various infections is listed in Table II.

TABLE II.—LOCATION OF THE INFECTIONS

Axilla.....	8
Hands.....	8
Forearms.....	5
Face and scalp.....	3
Legs.....	3
Shoulder.....	1

DISCUSSION

There has always been much disagreement concerning the value of toxoids or vaccines in the prevention of staphylococcal infections. Before the discovery of antibiotics, toxoid therapy was the more popular method of treatment in the chronic infections, and there are many conflicting results reported in the literature. Staphylococcal toxoid is prepared from the alpha toxin, which is only one of the many diffusible products produced by staphylococci which may possibly be concerned in the production of infection. The users of toxoid as a prophylactic agent assume that a high titre of circulating anti- α -hemolysin will confer a corresponding degree of immunity. Unfortunately this is not so.¹ It is now agreed that toxoid therapy and antitoxic immunity are only one aspect of resistance to staphylococcal infection.² Most authorities now accept the fact that, for this reason, toxoids are of no value in the treatment of staphylococcal infections, especially those of the skin.

Although the use of autogenous vaccines is not as popular as it was in the pre-antibiotic era, there

has been renewed interest in their use with the increase in staphylococcal infections due to antibiotic-resistant organisms. There are many reports, usually of uncontrolled studies, suggesting the value of vaccines in the treatment of patients with chronic recurrent furunculosis. The immunity, if any, conferred by the injection of killed organisms will be antibacterial and to the organism as a whole. Forssman³ firmly believed that bacterial immunity played a more important role in protection than circulating antitoxin.

The failure of live virulent organisms, present in the body during an acute infection, to produce immunity has been explained by many by the fact that these infections are walled off. In such cases no circulating antibodies have been detected. For this reason many authorities recommend the use of vaccines to circumvent the walling off of the organisms. This explanation does not seem reasonable, as we have all seen patients with multiple furuncles, and certainly for some hours at least the infection is not walled off and is only walled off in the later phases. If a patient has multiple lesions, there would always seem to be some which have not reached the stage of being walled off.

In addition to immunity, the desensitizing action of vaccine injections should not be overlooked. This neglected aspect may play a role in the treatment of chronic furunculosis and may explain the variation in the individual responses.

From the material presented it would seem clear that we have been unable to produce any immunity in our unexposed subjects. It would seem reasonable that if we are unable to produce immunity before infection then it would be most unlikely that we would ever be able to accomplish this during an active infection. Therefore one must conclude that vaccines have no place in the prophylaxis or treatment of acute staphylococcal infections of the skin.

SUMMARY

An attempt was made to develop immunity to staphylococcal infections among student nurses in a general hospital by using a heat-killed vaccine. The nurses were divided into two equal groups, one-half acting as a control. After a follow-up of some 9 to 21 months there has been an increased rate of infection in the inoculated group as compared with the control group.

The conclusion drawn is that, within the scope of this experiment using the stated dosage, we were unable to develop any immunity against staphylococcal infections. It seems logical to conclude that if we are unable to produce immunity before infection, it would be hopeless to attempt to do this once the infection has taken place.

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Q FEVER INFECTIONS IN AN ONTARIO FAMILY

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ALTHOUGH large outbreaks of Q fever have been encountered in several regions of the United States since 1946,¹⁻⁴ the first outbreak of Q fever in Canada affected 62 employees at an abattoir at Princeville, Quebec, in April 1956.⁵ After the discovery of the Q fever rickettsia (*Coxiella burnetii*) as the causative agent of a febrile disease which affected meat workers in Queensland, Australia, in 1935,⁶ this agent has been incriminated frequently in epidemics affecting slaughterhouse employees who were exposed regularly to animal carcasses or offal. However, in California during 1948-49, exposure to sheep on farms in northern areas⁴ and to dairy cattle in Los Angeles county in the south³ frequently resulted in infection with Q fever. Similarly in the Romney Marsh of Kent, England,⁷ with a high density of sheep population, Q fever occurred in farm workers and other residents, especially during the lambing and shearing seasons, but in Cambridgeshire where the sheep population was low, cases of Q fever were not encountered. In districts surrounding Princeville, Quebec, 59% of sheep had complement-fixing antibodies to Q fever,⁵ whereas merely 9.9% of cattle had antibodies. This strongly suggests sheep as major reservoirs of infection. In a serological survey of 334 lactating cows from 200 dairy herds in Wellington county and adjacent areas of western Ontario,⁸ milk samples from 60 cows (18%) distributed through 14 herds reacted positive for Q fever antibodies in the capillary agglutination test of Luoto.⁹ Sera from all these cows contained complement-fixing antibodies to Q fever (Nine Mile strain). Sheep or goats, reservoirs of infection, did not graze adjacent to these dairy herds. The cows were not infested with ticks or other arthropods. No history of illness suggestive of Q fever was elicited amongst dairy farmers or their families. Q fever antibodies have not been detected in sera from several thousands of residents of Ontario during the past 10 years.⁸

This paper reports the demonstration of a rising titre of complement-fixing antibody to Q fever in a child living approximately 30 miles north-west of Toronto who developed a febrile illness after exposure to sheep at her home. This patient lived in an area adjacent to that in which dairy cattle had Q fever antibodies. The presence of Q fever antibody in convalescent phase serum from this patient's sister, who had a similar illness, suggests that both these children were infected with *Coxiella burnetii*.

Patient L., a 3½-year-old girl, was admitted to the Hospital for Sick Children on May 1, 1960, because of painful swollen knees and a purpuric rash on her legs of three days' duration.

On or about April 14, she had developed a fever with headache, sore throat, and epistaxis followed by a scarlatiniform rash. The rash cleared in a few days but she continued to have a sore throat and low-grade fever. On April 20 she was exposed to sheep which had a febrile illness attributed to ticks. Her fever became high again on April 28, her knees became swollen and painful, a rash appeared on her legs, and she was referred to the Hospital for Sick Children. During her five days in hospital, her temperature fluctuated between 99° and 100° F. There was an old blood clot and a patch of impetigo in her nose; the tonsils were enlarged but not infected, the tongue was smooth with prominent papillae, and the pharynx was mildly injected. Lungs and heart were normal, and liver and spleen not palpable. At the time of admission only slight swelling of the left knee joint was present. There was no pain in her knees, and all other joints were normal. Many purpuric and small ecchymotic spots were present over the legs below the knees and on her feet. Fine peeling of the skin was seen on her fingers. A chest radiograph showed normal heart and lungs. An electrocardiogram was normal. The hemoglobin level was 10.5 g. %, and the leukocyte count 11,600 per c.mm., with 54% mature neutrophils, 3% immature neutrophils, 6% eosinophils, 33% lymphocytes and 4% monocytes. The platelet count was 383,000 per c.mm.; the prothrombin, bleeding and clotting times were normal, and the tourniquet test was negative. Urinalysis showed no albumin or sugar and normal sediment. Erythrocyte sedimentation rate was 30 mm. in one hour; the tuberculin skin test was negative. Antistreptolysin "O" titre was 50 units. Considerable symptomatic improvement was noted after five days of bed rest together with a daily dose of 400,000 units of penicillin, intramuscularly. By the day of discharge from hospital the rash had almost disappeared. A diagnosis of anaphylactoid purpura (post-scarlet fever) was made. On May 10, five days after leaving hospital, she became listless and anorexic, and the next day her temperature suddenly rose to 103° F. She complained of severe frontal headache and pains in her limbs, and had a slight sore throat. Her family physician found no focus of infection and prescribed chloramphenicol, which was given for three days. Her response was dramatic; the temperature fell to 100° F. within 24 hours and remained normal thereafter, the other symptoms disappearing at the same time. She remained healthy during the next month, although she tired easily and at times looked abnormally pale.

Her two-year-old sister, J., also had a febrile illness in mid-April, consisting of mild fever, sore throat, impetigo in her nose, epistaxis, and a mild scarlatiniform rash lasting for only one day. With her sister, she played with the infected sheep on April 20, and remained well until May 4 when she became drowsy, listless and anorexic, complained of slight sore throat and severe headache, and developed a fever which recurred for eight days. Her mother observed that her temperature would remain normal for some hours, then suddenly rise to 103 or 104° F. Her family physician found no cause for the fever, and after several days she was given intramuscular penicillin

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which was continued for four days, with gradual improvement in her condition.

Serological Results

Serum samples were obtained from patient L. on May 2, May 26, and June 3. Sera were obtained from other family members on June 3. All were heated at 56° C. for 30 minutes before use in complement-fixation tests. Serial twofold dilutions of sera from 1:4 to 1:128 were made in 80-cup plastic plates,* with 0.85% saline as diluent. Each cup received 0.1-ml. aliquots of serum dilutions. Complement† diluted to contain 2 complete hemolytic units per 0.1-ml. aliquot was added to each serum dilution. Aliquots (0.1 ml.) of inactivated antigens‡ prepared from yolk sacs infected with Q fever (Nine Mile strain) diluted 1:16, Rocky Mountain spotted fever diluted 1:6 or psittacosis diluted 1:8, were added to each cup. Complement was titrated in the presence of each antigen and saline. After standing overnight at 4° C., 0.2-ml. aliquots of a 2% suspension of washed sheep-erythrocytes sensitized with 4 units of hemolysin were added to each cup. The plates were incubated at 37° C. for 10 minutes and shaken once, and the test was read after a further 30 minutes' incubation. The titre of a serum was expressed as the reciprocal of the highest dilution in which complete fixation of complement was observed. The titre of complement in the presence of various antigens did not differ from that observed in the presence of saline alone. All tests reported in Table I were performed on the same day.

TABLE I.—COMPLEMENT FIXATION TITRES OF HUMAN SERA

Subject	Date	Antibody titre		R.M.S.F.
		Q fever	Psittacosis	
L.	2/5/60	4	0	0
L.	26/5/60	16	0	0
L.	3/6/60	32	—	0
J.	3/6/60	32	—	0
G.	3/6/60	8	—	0
H.	3/6/60	0	—	0

0 signifies antibody titre less than 4.

R.M.S.F. = Rocky Mountain spotted fever.

Antibody titres rising from 4 to 32 were detected in successive sera from L. (Table I). This strongly suggests that the patient suffered from an infection with Q fever at the time of her illness. Furthermore, an elevated Q fever antibody titre in J.'s serum strongly suggests that she was infected with this organism. The low level of antibody in G.'s serum suggests that he contracted a mild infection with Q fever.

We believe that these are the first human cases in Ontario in which a diagnosis of Q fever infection has been established on serological grounds.

DISCUSSION

The incubation period of Q fever is two to four weeks,^{2, 10} although in severe cases it may be shorter. In 180 patients in northern California who

developed Q fever¹¹ the onset was usually sudden, with fever, chills, malaise and headache. In 35% of patients, fever lasted less than one week, and although no patients under 10 years of age were included in this series it was noted that the illness was milder in persons of younger age. Eleven per cent of patients complained of joint pains, and 4% had a skin rash, but the rash had no constant pattern and did not resemble anaphylactoid purpura.

We believe that the following sequence of events occurred in the two sisters whose histories and laboratory data have been described above. In mid-April they had a streptococcal infection with scarlatiniform rash and impetigo. Patient L. had a more severe attack and developed anaphylactoid purpura (Schönlein type) as a sequel. Both girls played with infected sheep on April 20. After an incubation period of 14 days, J. developed symptoms compatible with Q fever, which lasted eight days and was probably uninfluenced by penicillin therapy. The onset of similar symptoms in patient L. occurred after an incubation period of 20 days, but in her case the disease was cut short by treatment with chloramphenicol. In both girls, a history of recent exposure to sheep, residence in a district adjacent to an area where Q fever is highly endemic in dairy cattle, and the demonstration of rising or elevated antibody titres to Q fever in successive serum samples provided strong evidence in favour of *Coxiella burnetii* as the etiological agent in their illnesses.

SUMMARY

Two children who lived some 30 miles north-west of Toronto contracted febrile infections after exposure to sheep at their home. They lived in a district adjacent to dairy herds in which Q fever is endemic. A rising titre of complement-fixing antibody to *Coxiella burnetii* antigen in successive sera from one patient and an elevated antibody titre in convalescent phase serum from the other patient strongly suggested infection with Q fever.

We wish to thank Dr. E. W. Twiddy for his assistance and co-operation in obtaining clinical and epidemiological data.

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*Prestware Ltd., Kingston, S.W.20, England.

†Markham Laboratories, Chicago, Illinois.

‡Lederle Laboratories Division, Pearl River, New York.

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TRouble IN THE NURSERY

THE ubiquitous staphylococcus has made a home for itself in the one haven from which we would most like to banish it, namely the hospital, and one of its favorite hunting grounds has been the nursery. Here it has found increasingly heavy concentrations of highly susceptible victims as more and more mothers come to hospitals to be delivered of their babies. Its incursions into this area have been followed by numerous outbreaks of infection, occasionally making it necessary to close the nursery, or even the entire hospital.

In a recently reported study of these nursery infections, Hardymont and his colleagues¹ from the department of pediatrics at the Vancouver General Hospital found the most common site of infection to be the skin, where the lesions usually took the form of vesicles or pustules. Such lesions are sometimes confused with benign toxic erythema of the newborn, which is also characterized by skin lesions with a raised white centre, but in benign toxic erythema this lies against an erythematous base and the lesions are not infective. Doubt as to the identity of such lesions may be resolved by microscopic examination of a smear made from their contents; the staphylococcal pustule contains a predominance of polymorphonuclear neutrophils, whereas the cellular reaction of benign toxic erythema is largely eosinophilic. The initial incidence of pyoderma in babies receiving no prophylactic treatment in the Vancouver survey varied greatly from month to month but averaged 30 per 1000 live births. Careful follow-up of babies after discharge from this hospital revealed that 41.7 per 1000 subsequently developed pyoderma. Thus, many infants developed the first clinical evidence of this condition after discharge from hospital. Hardymont *et al.* report that the application of 3% hexachlorophene in detergent to the baby's body soon after birth and every other day thereafter is a most effective procedure in the control of infantile pyoderma. Not only did this procedure reduce the incidence of staphylococcal skin in-

fections in their experience to less than three per 1000 live births, but it also was associated with a decrease in such infections developing at home after discharge from hospital. It did not, however, influence the frequency of staphylococcal contamination of the umbilicus. The latter condition, detected by cultures from swabs of the umbilical cord stump and usually not accompanied by overt clinical disease, was controlled by daily application of triple dye as recommended by Jellard.²

Complete and permanent exclusion of staphylococci from hospital nurseries has been a much sought-after ideal which has not yet been achieved. The apparent futility of attempts to attain this objective was emphasized at the recently opened University of California teaching hospital where the new nursery rapidly became as badly contaminated by staphylococci as the old.³ As deVries and Salisnjak point out in their paper which appears elsewhere in this issue, "good housekeeping" principles are of fundamental importance and, if properly observed, can maintain satisfactory control of staphylococcal contamination of the nursery environment. Unfortunately, even if the nursery is eliminated as the source of contamination, infants rapidly become colonized by staphylococci from other sources including their mothers, nurses, or other hospital personnel. Staphylococcal colonization of newborn infants is apparently not completely controlled by such measures as careful aseptic technique (important and essential though this may be), prompt isolation of infected babies, or early discharge from the hospital.

A new avenue of attack on this problem of hospital cross-infection by staphylococci has been advanced by Elek and Fleming,⁴ who emphasize that a fundamental of any program for control of such infections is an effective means of interrupting the epidemiological cycle of this organism. The major source from which staphylococci are continuously being seeded throughout hospital populations, staff and patients alike, is the nasal reservoir of carriers without clinically evident infection. From this reservoir the organisms multiply and are disseminated into air and dust whence they colonize the noses of other individuals who become additional carriers. Air sampling studies have demonstrated that the atmosphere of hospitals contains appreciable concentrations of penicillin. It is probable that this sterilizes the nasal passages of hospital inhabitants insofar as penicillin-sensitive staphylococci are concerned but leaves resistant strains of the organism free to flourish. Theoretically, the nasal carriage of all staphylococci could be eliminated, and the epidemiological cycle thereby broken, by deliberate introduction into the atmosphere of an antibiotic lethal to *all* staphylococci. Spraying the atmosphere with concentrated solutions of such a drug could produce droplet nuclei of the antibiotic which would follow essentially the same pathways as the staphylococci within the environment. If, by this means, an effective con-

centration of a bactericidal agent could be continuously maintained in the nasal passages of all individuals within the hospital, the source of staphylococcal supply could be cut off, the concentration of staphylococci in the surroundings should gradually diminish and cross-infection should be effectively reduced. Such an approach has heretofore been merely hypothetical because no bactericidal agent was available to which staphylococci did not eventually develop resistance. However, the production of new, penicillinase-resistant synthetic antibiotics from the penicillin nucleus, 6-aminopenicillanic acid, recently referred to in the editorial columns of this Journal,⁵ might conceivably overcome this obstacle. The evidence available to date suggests that one of these new synthetic penicillins, 6-(2,6 dimethoxybenzamido) penicillanate monohydrate (BRL 1241 or Celbenin [Beecham]) (X 1497 or Staphcillin [Bristol]), is a promising and effective antistaphylococcal agent with potent bactericidal activity against all strains of staphylococci tested to date, including strains resistant to the earlier penicillins and to other antibiotics. Elek and Fleming have recently investigated the efficacy of frequent spraying of the atmosphere of a hospital maternity unit and its nursery with a concentrated solution of BRL 1241. Their preliminary observations suggest that this simple procedure may be effective in preventing the usual colonization of newborn infants by pyogenic staphylococci. This technique is economical in terms of labour and materials and these promising early results warrant further study of this method of control of staphylococcal cross-infection, not only in the nursery but in the hospital as a whole.

Nevertheless, any optimism occasioned by these preliminary experiences must, of necessity, be tempered by past frustrations with other apparently promising antibiotics. It remains to be seen whether or not strains of staphylococci resistant to even these new penicillinase-insensitive synthetic penicillins will yet emerge. If this should be the case, all the existing problems of cross-infection by resistant staphylococci would remain *in status quo*.

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THE PREVALENCE OF STAPHYLOCOCCI IN THE PURVIEW OF GENERAL PRACTICE

THE problem of staphylococcal infections in hospitals has been the subject of intensive study, productive of a multitude of reports in recent years. In addition to the independent investigations of individual groups, such as those reported elsewhere in this issue of the Journal, the hospital aspect of staphylococcal infections is being studied in this

country by the National Research Council's Associate Committee on Control of Hospital Infections. Less is known about the magnitude of the staphylococcus menace in settings outside the hospital. To gather data thereon, the Australian College of General Practitioners and the Commonwealth Department of Health jointly sponsored a survey of staphylococcal infections encountered by general practitioners in various areas throughout Australia. Between May and December of 1958, family physicians in 44 practices co-operated with various government and university laboratories in a study of 2164 individuals of all ages and both sexes. Approximately one-third of the infections encountered were furuncles, which together with abscesses and carbuncles accounted for half of the staphylococcal lesions diagnosed. The bacteriological investigations included studies of antibiotic sensitivity and also of the staphylococcal phage types.

Striking features of this survey were the high incidence of penicillin-resistant strains both from clinical lesions and from routine nasal swabs, the high prevalence of infections due to the virulent phage type 80 staphylococcus, and the low incidence of strains resistant to antibiotics other than penicillin.

The general practitioners of Australia are to be commended for their contribution to this comprehensive and well-organized study which sets a pattern that might well be emulated by the Canadian College of General Practice in co-operation with other appropriate organizations in this country.

W.H.LER.

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BLOOD PRESSURE STUDIES ON THE INSURED POPULATION

NEW data concerning the "average" blood pressure readings of apparently normal adults have become available through an extensive investigation conducted by the Society of Actuaries and published in 1959 under the title Build and Blood Pressure Study. This report is based on the results of examination of several million people insured by 26 large life insurance companies in the United States and Canada, between 1935 and 1953. The subjects were presumably healthy individuals accepted for ordinary life insurance. Though the data obtained may not be typical of the general population, they are more applicable to the younger than the older ages, since rejection solely due to hypertension is uncommon among younger applicants for insurance. As is the case with all blood pressure data, the figures are approximate and not exact determina-

AVERAGE BLOOD PRESSURES OF PERSONS ACCEPTED FOR
ORDINARY INSURANCE 1935 - 53

Age (years)	Men		Women	
	Systolic (mm.)	Diastolic* (mm.)	Systolic (mm.)	Diastolic* (mm.)
15 - 19	117	71	114	70
20 - 24	119	73	115	72
25 - 29	121	75	117	73
30 - 34	122	76	118	74
35 - 39	123	77	120	75
40 - 44	124	78	123	76
45 - 49	126	78	126	78
50 - 54	128	79	128	79
55 - 59	130	79	131	80
60 - 64	132	80	134	81

*Fifth phase—auscultatory reading taken at point of complete cessation of sound. (Build and Blood Pressure Study, 1959, Society of Actuaries).

tions since examiners tend to express the majority of readings in terms of even "tens", "fives", or even-numbered terminal digits.

Average blood pressure figures increased steadily with age in both sexes. In the males, the systolic average rose from 117 mm. at ages 15 to 19, to 132 mm. at ages 60 to 64 years, while the average diastolic pressure rose from 71 to 80 mm., though more slowly after the age of 30. Among females, the average systolic pressure increased from 114 to 134 mm. and the diastolic from 70 to 81 in the comparable age groups. The readings of the female applicants increased more gradually than those of the males in the younger age groups but more rapidly than those for men after the age of 40 years.

Below the age of 45 years the average readings were slightly lower for men than for women, the maximum difference being 4 mm. systolic at ages 20 to 34, and 2 mm. diastolic at ages 25 to 44. Between 45 and 54 years of age the averages were identical for the two sexes but over the age of 54, were slightly higher among females.

With increase in body weight there was a regular rise in average blood pressure readings. In the 40

to 49 year age group—for example, the average systolic pressure for males of medium height weighing 195 to 214 lb. was 5 mm. higher than for those who weighed 115 to 134 lb.

Though the term "hypertension" has no universally accepted definition, past insurance studies indicate that mortality rates increase significantly with systolic pressures over 140 mm. or diastolic pressures over 90 mm. The percentage of males with readings above these figures rose from 3% in the 20 to 29 year age groups, to 28% among those aged 60 to 69 years.

The frequency of elevated blood pressure (as defined by these readings) was higher among males than among females up to the age of 40 years; beyond that age, it was higher among women.

SWEDISH DOCTORS AND THEIR WORK

RECENTLY an interesting report¹ has appeared, based on a 1954-55 questionnaire survey of the Swedish Medical Association. This report was prepared by the Social Security Research Centre in Stockholm for submission to the World Medical Association. The situation in Sweden reflects a world trend in medical practice towards increased state control and participation, with an increasing number of salaried posts.

Considering the type of work done by Swedish physicians, 20.5% are in private practice, 12.9% are state or municipal health officers, and 49.9% are senior and junior hospital staff physicians. Remaining categories include retired physicians, research workers and other unclassified groups. Certain of the municipal health officers do about 50% private practice, while the hospital staff physicians do about 10% private practice. About 40% of all physicians' time is consumed in providing care in closed hospitals and 40% in care away from hospitals. Hygiene and social welfare services account for about 6%. Other medical work, teaching, research and administration, account for 10% of all physicians' working time.

In spite of governmental efforts, the distribution of physicians in Sweden is high in cities and low in rural areas; for instance, in Stockholm there are 625 people per doctor, while in upper Norrland there are 2469 people per physician.

The future career selections by young physicians show that an increasing number are deciding on full-time hospital work and at present far fewer are planning to take up careers as health officers. The surveys carried out in 1943 and 1954 show that on both occasions 13.1% planned a career as private practitioners. Among the private practitioners only 5% at present choose general practice as a career.

W.H.LER.

FREQUENCY OF ELEVATED BLOOD PRESSURE LEVELS AMONG
PERSONS ACCEPTED FOR ORDINARY INSURANCE BETWEEN
1935 AND 1953

Men age years	Per cent with systolic or diastolic pressure of indicated level*		
	140/90 or higher	145/95 or higher	150/100 or higher
20 - 29	3	0.4	0.2
30 - 39	5	0.9	0.4
40 - 49	10	2.6	0.9
50 - 59	19	6.7	2.9
60 - 69	28	11.6	5.1
Women			
20 - 29	1	—	—
30 - 39	3	0.5	0.2
40 - 49	11	3.3	1.4
50 - 59	23	9.4	4.9
60 - 69	35	14.6	6.4

*Either or both readings of stated value or higher.—Diastolic reading at 5th phase (complete cessation of sound).

(Prepared by Metropolitan Life Insurance Company from data of the Build and Blood Pressure Study, 1959, Society of Actuaries.)

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LETTERS TO THE EDITOR

IN PRAISE OF PSYCHOANALYSIS

To the Editor:

I thought that Dr. Makins' letter (*Canad. M. A. J.*, 83: 392, 1960) was a humorous reply to Dr. I. Schiffer's previous short note in the best tradition of a running commentary by a peripatetic correspondent of the *Lancet*.

The two recent letters from Dr. W. M. Mitchell and Dr. Herbert Pascoe (*Canad. M. A. J.*, 83: 724, 1960) make me think I might have been mistaken.

I would be grateful if Dr. Makins could clarify his position.

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To the Editor:

By being brief in my letter (*Canad. M. A. J.*, 83: 392, 1960), I have been misunderstood by Drs. Mitchell and Pascoe (*Ibid.*, 83: 724, 1960). I would like to identify myself with Dr. W. Victor Johnston's article on general practice, in the same issue (*Ibid.*, 83: 714, 1960).

Firstly, the title "In Praise of Psychoanalysis" came from the Editor—not from me. It is certain that long-term Freudian style psychoanalysis has largely failed as a method of treatment; modern tranquilizers do better. Modern psychoanalysis uses chance remarks rather than dreams to diagnose unconscious motives. This is unfortunately not as concrete as evidence on x-ray films or tables of statistics but there is, after all, no objective evidence that a person outside oneself has consciousness at all, and modern physics recognizes the subjective approach, even relegating the idea of concrete and objective evidence to outdated Newtonian physics.

I believe that the traditional "bedside manner" as exemplified in the classic, "The Story of San Michele" by Dr. Axel Munthe, is appropriate and deserves extension and full scientific study. The logical outcome of designating illnesses "psychosomatic" should be to investigate and treat equally both the physical and psychological factors and I am convinced from experience in my own practice that the combination of approaches succeeds when each fails if applied separately. Psychosomatic illnesses form a major part of general practice, more frequently than overt mental problems, and have the peculiarity that the emotional problem is masked by a physical symptom, usually because the patient is unwilling and unable to face the mental side consciously, so the patient should not be made aware that he is being psychoanalyzed. Leading questions such as "Do you have any worries?" or "Do you quarrel with your family?" (the answers are invariably negative) and explanations to the patient such as "It's due to nerves" or "It's all in your head", must be replaced by more subtle conversation and explanations preserving the deception like Dr. Munthe in his use of "colitis" or in modern terms "stress". Patients then have a (to them) definite complaint as

an emotional outlet, instead of blind anxiety, until they can face the problem consciously, if ever. This is one reason for preoperative psychological assessment to avoid removing a valuable prop to the patient by surgery. Why else would patients ask for the family doctor to be present at operation, if not to guarantee no trauma to their psyche? Maybe this is the basis of postgastrectomy syndrome? Wherever there is a gap in medical science, there is danger that quacks will rush in where angels fear to tread, but Dr. Mitchell is himself guilty of exaggerating by mentioning rectal carcinoma or emergency laparotomy being delayed by misplaced psychoanalysis, as if this were typical. The patient destined for elective surgery should be psychoanalyzed, ideally by the family doctor in the months preceding referral for surgery but failing that, by preoperative consultation along with usual routines to exclude untreated cardiac failure, diabetes etc.—and why not exclude early psychosis? Good psychotherapy could have positive effect in reducing postoperative shock. Hypnosis has been tried here as in labour.

Turning to medical education, whereas great pains are taken to ensure academic standards in students, little is done to teach public relations. Few doctors cannot recall a colleague in their experience who may have been an intellectual giant but could not handle people, through obvious emotional immaturity. Such doctors are best helped to adjust as students and failing improvement, to accept their limitations and engage in research or laboratory work. However, efforts to ensure well-rounded development are lost in the present trend towards specialization and the neurotic fear of departing from the literature. Dr. Johnston has expressed the need for this field to become a specialty, and students could be directed to study the handling of patients by experienced family doctors with a psychiatrist present, to add comments when the patient has left, or in an adjoining sound-proof room. Such training could culminate in a higher degree, particularly for G.P.'s, but also as a half-way stage towards full specialization in psychiatry.

I would like to add illustrations from actual cases, but space does not permit.

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Edmonton, Alta.

AMNIOTIC MEMBRANES IN BURNS

To the Editor:

I was very much interested in the paper by Dr. Jean Pigeon (*Canad. M. A. J.*, 83: 844, 1960) on the treatment of extensive burns with amniotic membranes. Dr. Pigeon is to be congratulated on his success and especially on his ability to form a sort of "amniotic bank".

Little is known of the action of these biological products, but in certain instances they definitely seem to be very beneficial. Over the past ten years I have had occasion to use a similar treatment in cases of burns and non-healing wounds. Unlike Dr. Pigeon, I have never personally used amniotic membrane or implants directly applied to wounds; my experience is

limited to the use of a pharmaceutical preparation extracted from placento-amniotic tissue. This is now commercially manufactured in Switzerland and in England. Further to Dr. Pigeon's happy experience, the following case report might be informative.

Not long ago I was asked to treat a patient with severe electric burns which responded remarkably to placental therapy. A Nova Scotia miner, who had grasped a live super-high-voltage electric cable, was gravely injured, sustaining shock and very extensive burns of the left hand (point of entry of current) and left foot (point of exit). The fifth finger was completely charred down to bone, while the remaining fingers, palm and wrist presented very deep burns involving the flexor tendons. The sole of the foot was equally badly burnt. The patient had been urgently sent to hospital with a request by his physician that the operating room be got ready for emergency amputation. I was asked to see the patient with a view to performing the operation. Having had satisfactory results with placental extracts in other forms of trophic ulcers and unhealthy wounds, I thought we should give this manual worker a chance. The charred fifth finger was amputated; the rest of the burnt areas was debrided and covered with placental cream. The natural "padding" of the sole of the foot seemed to have been completely burnt away, with extensive damage to the plantar structures. A "delay" pedicle flap was raised on the right leg with a view to subsequent transfer to the sole of the left foot. But, after about a week,

the burnt areas looked healthy. Granulation, in an almost "cooked" tissue, was beginning to appear and subsequently progressed satisfactorily. Tendons, which notoriously slough off, did not necrotize. Within about three months the man was using his hand and was completely ambulant on his feet, without any supplementary sole padding. He is now back at his old job. Epithelial covering is most satisfactory, and the scars are supple and esthetic. Incidentally, the flap that was elevated for grafting—just in case—was never used.

Placental and amniotic extract has also been used in decubital ulcers, necrotic lesions of peripheral vascular disease, gravitational ulcers, skin erosions around fistulae and, in general, in all slow-healing or non-healing wounds which do not respond to the usual methods of treatment.

To my knowledge the preparation does not exist in this country and was generously supplied to us, by air, by the manufacturers, Paines and Byrne Laboratories, Greenford, London, England. They now market it under the name of "Variderm". Dr. Pigeon comes up with another readily available "bank".

Little is known of the pharmacodynamics and mode of action of these "biological stimulants", and further work on the subject will certainly be welcome.

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MEDICAL NEWS IN BRIEF

CONTROL OF HOSPITAL CROSS-INFECTION BY STAPHYLOCOCCI

The problem of cross-infection with staphylococci in hospitals is still largely unsolved. While treatment of infected patients is important, the fundamental requirement is to break the epidemiological cycle. Rigorous aseptic surgical technique can keep wound infection to a low level but will not eliminate it and cannot be applied to prevention of such forms of cross-infection as staphylococcal bronchopneumonia in older, debilitated patients. In general, the greater the atmospheric pollution by staphylococci, the more readily will wounds and unhealthy epithelial surfaces become infected. High nasal carriage rates in normal people in the confined conditions of a hospital lead to a build-up of staphylococci: the noses of other individuals become colonized and in turn spread more staphylococci into the air and dust. The patient is but an accident in the fundamental cycle, but once infected he contributes further staphylococci to the pool. The introduction of antibiotics has not abolished this cycle but has tended to eliminate drug-sensitive organisms. Thus the environmental pool of infection has come to consist increasingly of staphylococci resistant to various antibiotics.

Of vital importance in this problem is the matter of nasal carriage. There is evidence to suggest that penicillin permeating the atmosphere in hospitals accounts

for elimination of staphylococci from the noses of hospital personnel. The calculated introduction into the hospital atmosphere of an antibiotic active against all strains of staphylococci could conceivably abolish the nasal carriage of this organism, and lead to a reduction in cross-infection. The drug used for this purpose should not lead to emergence of resistant strains after prolonged use, should not cause local irritation and should not induce hypersensitivity phenomena.

To investigate the feasibility of such a program to eradicate nasal carriers of staphylococci in a hospital setting, Elek and Fleming (*Lancet*, 2: 569, 1960) investigated preliminary studies in a hospital maternity unit involving the spraying of the atmosphere with a solution containing 1 g. of the recently developed, penicillinase-resistant, synthetic penicillin, BRL 1241 (Celbenin). Spraying was performed either once daily or four times daily. Intensive bacteriological studies indicated that this procedure prevented the usual acquisition of pyogenic staphylococci by newborn infants. Such spraying produces droplet nuclei of the drug which circulate in the air in the same way as staphylococci. By this means it was possible to break the staphylococcal cycle at its focal point, the nasal reservoir. The properties of BRL 1241 appear to render it the most suitable drug now available for this purpose. This method is economical in labour and materials and is recommended as a basis for further research into the prevention of staphylococcal cross-infection.

IDIOPATHIC ACQUIRED AGAMMAGLOBULINEMIA ASSOCIATED WITH THYMOMA

Two cases of idiopathic acquired agammaglobulinemia associated with thymoma are reported by Gafni and co-workers (*New England J. Med.*, 263: 536, 1960), bringing the total of reported cases to 6. In all cases the presence of the mediastinal mass was known before the diagnosis of agammaglobulinemia was established. In five of the six patients histological data of the thymic tumour were available; the dominant cellular elements were epithelial: reticulum cells and spindle cells. It is pointed out that if a thymoma is looked for in every case of acquired agammaglobulinemia and if electrophoretic studies are performed in every case of thymoma, many more cases may well be discovered.

Inability to explain the pathophysiological mechanism underlying the association of thymoma and agammaglobulinemia is a reflection of a lack of basic knowledge of normal thymic function. Idiopathic acquired agammaglobulinemia must now be added to the list of myasthenia gravis, aplastic anemia and Cushing's syndrome as a disease found in significant association with thymic hyperplasia or tumour.

REGIONAL CONFERENCE OF INTERNISTS OF THE URAL (U.S.S.R.)

The regional conference of internists in Sverdlovsk, in February 1960, attracted some 600 delegates and guests from the entire Soviet Union (*Sovietskaia Med.*, 7: 145, 1960). The following are some of the highlights brought forward at this conference. The rising incidence of cardiovascular disease in workers and employees of industrial enterprises is causing much concern throughout the Soviet Union. The internist's role in prophylaxis and treatment of these diseases consists of attention to individual problems, and organization of health centres, polyclinics and specialized outpatient cardiovascular departments. Introduction of such measures was followed by a marked reduction of absenteeism. In heavy industry, cardiovascular disease was particularly prominent among administrative workers, but was also frequent among workers exposed to vibration.

The importance of unsaturated fatty acids in prevention and treatment of atherosclerosis was discussed and a resolution was passed requesting the Ministry of Health of the U.S.S.R. to increase production of linotole (Soviet equivalent of corn oil?), to ensure its availability to the entire population. Workers in the oil industry in Ufa, subject to prolonged exposure to naphtha products, show increased hyperactivity of the vagus with a tendency to hypotension and to disorders of the circulatory system. Rheumatic carditis and rheumatic fever frequently encountered in workers suffering from chronic tonsillitis were shown to be effectively prevented by proper care of the diseased tonsils. Heart failure refractory to cardiac glucosides and mercurial diuretics was treated with anti-inflammatory or hormonal agents, potassium-containing preparations, vitamin B₁ and oxygen, depending upon the metabolic disturbances responsible for the refractoriness to conventional treatment. Anticoagulant therapy in myocardial infarction and acute coronary insufficiency was discussed at great length and the effectiveness of both

the short-term and long-term treatment was stressed by various workers. The favourable effect of anticoagulants in thrombotic cerebral lesions was also reported. From Sverdlovsk came a report by Rozhdestvenskaya concerning a large series of patients with rheumatic heart disease treated by anticoagulants. A resolution was presented to the Health Ministry to ensure widespread application of anticoagulant therapy with all its ramifications. Synthesis of new anticoagulant agents and the organization of home anticoagulant therapy should be encouraged through the formation of a special commission of the Ministry.

The marked increase in incidence of acute and chronic leukemias in the Soviet Union in recent years was stressed by various workers. Anemic and hemorrhagic variants, rather than the septic-necrotic, are being observed most frequently.

Silicosis was the subject of a special discussion in view of its combination with tuberculosis and chronic pneumoconiosis.

NEW INDICATIONS FOR USE OF THE ARTIFICIAL KIDNEY

The artificial kidney was first devised by Kolff and Berk in 1944 to relieve the distressing symptoms of renal failure by removing retention products and correcting abnormal electrolyte patterns through the process of dialysis. The life-saving results of dialysis in cases of acute renal failure have been widely reported. The application of hemodialysis to various types of poisoning such as that caused by barbiturates, salicylates, bromides and other substances is well established.

It is not generally realized, however, that the advent of ultrafiltration to remove edema, especially pulmonary edema, has greatly expanded the usefulness of the artificial kidney. By electively increasing the perfusion pressure in the dialysing system by a screw clamp on the outflow tract, it is now possible to remove varying quantities of fluid by ultrafiltration. Regional heparinization has virtually eliminated the danger of hemorrhage during dialysis.

The introduction of a twin-coil disposable dialysing unit has simplified the technical procedures involved and shortened the time required before dialysis can be instituted. The main advantage of this type of unit lies in the facility with which it permits, electively, the removal of excess body fluid. Increasing the pressure in the dialysing coil to a maximum of 300 mm. Hg allows for removal of as much as 1200 ml. per hour of excess fluid by ultrafiltration. The resulting reduction of pulmonary edema during the first 1½ hours of dialysis can be dramatic. By this means it is occasionally possible to break the vicious circle of progressive congestive cardiac failure with its attendant disturbances of renal function, if the procedure of dialysis is well timed and carefully carried out.

Expansion of the fields of therapeutic usefulness of the Kolff artificial kidney has recently been discussed by Goldsmith, Nakomoto and Kolff (*Lancet*, 2: 111, 1960) with case reports illustrating its effectiveness for selected patients with burns, cerebral edema due to leptospiral nephritis, sulfadiazine intoxication with anuria, and congestive heart failure.

(Continued on advertising page 33)

GENERAL PRACTICE

PHENYLKETONURIA

Of more than 70 known causes of mental retardation, phenylketonuria is of special interest because it appears to provide a particular opportunity for early diagnosis and treatment before mental retardation is established. The following message is from the College Research Committee and is accompanied by a special article on the subject.—W.V.J.

A CASE-FINDING CAMPAIGN ON PHENYLKETONURIA



Most physicians know little about phenylketonuria. This rare inborn error of metabolism was first described in 1934, but only recently has it become of more than academic interest. The main features of the disease are severe mental deficiency and the appearance of phenylpyruvic acid in the urine. The latter makes the condition simple to identify, since phenylpyruvic acid forms a green colour with ferric chloride.

The only virtue now in knowing anything about this illness is that recent evidence strongly suggests that treatment by a diet low in phenylalanine — from the first weeks of life — will prevent the appearance of mental deficiency.

Therefore it has now become of practical importance to diagnose this disorder early. This is a task for the general practitioner. Once a patient is diagnosed as, or suspected of, having this disease, he should be referred to hospital for full investigation and treatment.

It is felt that these facts about phenylketonuria should be made known to all members of the medical profession and that a simple test for this condition should be included in the examination of every child. A description of the disease with advice on how to diagnose it will be found in the following article. During the past two years the Canadian Association for Retarded Children and the Ontario Association have publicized aspects of the disease through several Canadian publications. A full account of phenylketonuria (P.K.U.) appeared in the *Saturday Evening Post* in November 1959, and the public is becoming aware of the condition.

Physicians will shortly receive in the mail a booklet concerning this disease and a plastic dropper bottle containing 10% ferric chloride for use in the diagnosis of P.K.U. This campaign is being organized by the College Central Committee on Research. We are most anxious that all members of the College give thought to this matter and we would welcome comments, criticism or enquiries. We would especially appreciate an account of any cases of phenylketonuria discovered during the next year so that we may gauge the success of these efforts.

W. B. FRASER, M.D.,
Chairman, Central Research Committee,
College of General Practice.

PHENYLKETONURIA

PHENYLKETONURIA is an inborn error of metabolism. The primary defect appears to be a deficiency of the enzyme responsible for the normal conversion of phenylalanine to tyrosine. As a result, phenylalanine accumulates in the blood and it, and its ketone derivatives, "spill over" into the urine. This gives the disease its name and it also forms a basis for its recognition: one of the ketone bodies is phenylpyruvic acid, which gives a green colour with ferric chloride.^{1, 2}

CLINICAL PICTURE

It is almost certain that the child with phenylketonuria is protected *in utero* by the mother and is born physically, mentally and biochemically normal. However, in the first few days of life, the phenylalanine from milk begins to accumulate in the blood and, in due course, phenylpyruvic acid appears in the urine sometime between the second and eighth week. During this time about half the patients suffer from vomiting and about a third are very irritable.³ Infantile eczema is seen in about one-fifth of cases. At first the baby seems to develop normally but around the fourth or fifth month the mother realizes that the child is slowing up or even losing acquired skills. A few of these patients have akinetic or drop seizures in the first year and some have episodes of grand mal. Another feature, which is very real to the mother, is a characteristic smell; this has most frequently been called "musty", but others have used terms such as "mouse-like" or "wolf-like". The smell is probably due to the presence of phenylacetic acid in the urine.

Untreated, these infants do poorly. The vomiting usually ceases about the sixth month, but the irritability, eczema, smell and seizures persist. By the age of one year, the patient is severely retarded and remains at the idiot or imbecile level for life. On the whole, these children have blond hair and blue eyes, but this is not consistent enough to be of much diagnostic use.

As an older child or adult, the phenylketonuric patient is a depressing sight. Many patients are bed-ridden and incontinent. Few learn to speak or perform the most elementary manual tasks. They are often irritable and difficult, but the eczema and seizures tend to regress after the age of two or three years.

Patients have been discovered who fulfil all the biochemical criteria of phenylketonuria but whose intelligence is normal or near normal. These are very rare.

TREATMENT

Treatment by a diet low in phenylalanine from the first weeks of life will almost certainly preserve

the intelligence of the patient with phenylketonuria.⁴ Treatment started before the age of six months may well prevent the worse ravages of the disease, and occasionally treatment of the older child has resulted in extraordinary improvement. The diet, however, has drawbacks; it is not very pleasant and it is expensive. Treatment needs to be controlled by periodic measurement of the blood phenylalanine level and it is best supervised from a hospital centre.

DIAGNOSIS

Phenylketonuria is a rare disease. Estimates of its prevalence vary from 1 in 20,000 to 1 in 40,000 of the general population. The disease is inherited as a simple Mendelian recessive, so that one can expect little help from the family history, unless a sibling is affected. On the average, one child in four children from a pair of heterozygote carriers will be affected. It follows that multiple cases in a sibship are not uncommon.

The clinical picture is not characteristic enough to permit a diagnosis by itself. However, a retarded sibling, vomiting, irritability, infantile eczema, seizures, a peculiar smell, retardation and, possibly, fair hair and blue eyes, are all suggestive features. The diagnosis is made by examining the urine with ferric chloride and is confirmed by finding an elevated level of phenylalanine in the blood.

Ferric chloride, 10%, should be added in excess to fresh urine. A positive result is shown by a green colour that develops within 30 seconds and fades

in two or three minutes. The same solution may be dropped directly on to a wet diaper; again, a green colour indicates the presence of phenylpyruvic acid. Phenistix, a dip-and-read test, is equally reliable and can be used on a wet diaper. False positive tests are uncommon. Negative tests on phenylketonuric patients are also uncommon except in the first ten days or so of life, or after a period of starvation.

The test is so simple, cheap and reliable, and the rewards of finding an early case are so great, that it seems reasonable to suggest that the physician use it on every infant. Mass screening tests, however, are useless in the first week of life. Ideally every baby should be tested at fortnightly intervals for the first eight weeks. A fair compromise would seem to be one test at three or four weeks and another at eight to ten weeks.

Blanket programs of this kind are often unwieldy and impractical, but at least routine screening should be simple to organize in hospitals, infant welfare centres, skin clinics and doctors' offices.

Because the disease is so rare, it is likely that many doctors or centres will seldom or never find a case. But it is certain that no one will find an early case unless he looks for it.

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MEDICAL MEETINGS

ANNUAL CONFERENCE OF THE BRITISH TUBERCULOSIS ASSOCIATION

The Annual Conference of the British Tuberculosis Association was held at Oxford from July 6 to 9, the scientific meetings being held at the School of Geography, University of Oxford, Mansfield Road. The Annual General Meeting of the Tuberculosis and Diseases of the Chest Group, British Medical Association, was held on Wednesday, July 7, at Manchester College, Oxford.

The chairman of the scientific sessions for the first day was Dr. J. G. Scadding, and the first speaker was Dr. Georges Canetti of the Pasteur Institute, Paris. Dr. Canetti is, of course, well known as a student of the tubercle bacillus and its fundamental effects on human and animal tissue, and his paper entitled "Bacterial Populations in Experimental Tuberculosis under Chemotherapy" was of the high standard that we have come to associate with him. He first described previous work of his colleagues, which indicated that resistant mutants can occur in experimental tuberculosis if one waits 15 days before antimicrobial therapy is instituted after

experimental infection with tubercle bacilli. When this has occurred, it is possible to study the effect of such antimicrobial therapy on such resistant tubercle bacilli with different serum levels of isoniazid. Dr. Canetti's work in this specialized field consisted of a beautiful demonstration of the transference of cultural findings to animal studies in experimental tuberculosis. Among other things, he demonstrated that, irrespective of the degree of bacterial resistance, there is no multiplication of tubercle bacilli when the serum level of isoniazid is as high as or higher than the degree of resistance of the organisms. He also demonstrated that tubercle bacilli exhibit adaptive phenomena, which allow them to flourish in concentrations of antibiotics that otherwise would be bactericidal. He suggested that, although single-drug therapy is now rarely, if ever, used, larger than usual doses of isoniazid should be given in cases where combined therapy is, for one reason or another, impossible.

The next item on the agenda was a symposium on ethionamide (1314Th). Detailed experimental studies on this antimicrobial agent were presented by Dr. Noël Rist of Paris, who emphasized that ethionamide is not

an isoniazid derivative and that it acts on isoniazid-resistant organisms. Like isoniazid, however, ethionamide alters the acid-fast qualities of the tubercle bacillus, and, also like isoniazid, it penetrates monocytes, its effect on the organisms being presumably via these cells. Dr. Rist produced original experimental evidence indicating the theoretical value of ethionamide, especially in various combinations, but felt that, for many reasons, we should not be too enthusiastic about its possibilities as an antituberculosis drug.

He was followed by Dr. G. Brouet, also of Paris, who presented the results of clinical experience with ethionamide in a large number of patients on his hospital service. These patients were treated with a dosage of 0.75 g. to 1.0 g. daily in the form of tablets or suppositories or both. Although Brouet found the drug to be of great value in certain selected cases, its use was severely limited by a wide variety of toxic effects, which were mainly gastrointestinal.

Dr. A. R. Sommer then presented the results of the British Tuberculosis Association controlled clinical trial of ethionamide with cycloserine or pyrazinamide, which had been going on for the past two years. Although the results were not clear-cut, it was concluded that the general trend of sputum conversion (about 50% of cases) was encouraging.

In general, all the participants in the symposium agreed that ethionamide is far from being an ideal drug in tuberculosis. Its major field of usefulness will continue to be in the greatly decreasing number of patients whose organisms are resistant to the more commonly used antimicrobial agents. It may find its place in the so-called "underdeveloped countries", but, as yet, it has a limited field of usefulness elsewhere.

The afternoon of July 7 began, under the chairmanship of Dr. Hugh Ramsay, with a paper on "The Etiology and Prognosis of Progressive Massive Fibrosis", by Professor Cochrane of Wales. Professor Cochrane has done monumental work on this crippling disease, work which has progressed over a period of at least ten years. Unfortunately, he now considers that we are no nearer to an explanation of the basic cause of this condition than we were ten years ago; the explanation, of course, being that it is a complication of an industrial dust-exposure disease and would not occur if such industrial exposure did not exist. As in the other pneumoconioses, however, it still remains to be explained why, of two individuals exposed to the same concentration of etiologic agent, one will develop progressive massive fibrosis, and the other will not. The previously held theory that progressive massive fibrosis is due to superimposed tuberculosis is now in some doubt. As to prognosis, Professor Cochrane suggests that if the area of disease on an x-ray film is measured, the larger the area the worse the prognosis.

The remainder of the afternoon of July 7 was occupied with the presentation of several short papers, apparently a new departure in the history of the British Tuberculosis Association.

Dr. W. H. Tattersall of Bournemouth emphasized the comparatively frequent occurrence of late relapses in pulmonary tuberculosis and toyed with the suggestion that perhaps it might be well to treat all "old" cases with a year of isoniazid therapy.

Dr. F. W. A. Turnbull described his clinical experiences with cycloserine and pyrazinamide in pulmonary tuberculosis, emphasizing the well-known toxic effects. He mentioned also the lesser-known toxic manifesta-

tions, e.g. photosensitivity, which is believed to be due to cycloserine. One feature of Dr. Turnbull's presentation was his emphasis on the use of enzymatic tests of liver function (SGOT and SGPT) as early indicators of hepatotoxicity due to pyrazinamide.

Next, Dr. A. Clark Penman and Dr. E. K. Quigley individually presented their experiences with the new "antituberculosis" agent known as diethyl dithioisophthalate (Etisul). This is a rather interesting drug which can be given only by inunction. Its active principle is ethyl mercaptan and, as a result, patients under treatment become extremely offensive to others because of the persistent odour of garlic. It was at first believed that this drug would restore bacterial sensitivity to other antimicrobial agents when this sensitivity had been lost. This is probably not the case, and it seems that this drug probably has little if any place in the treatment of tuberculosis.

Dr. P. A. Zorab of London then gave a most interesting paper on "The Lungs in Ankylosing Spondylitis", and illustrated by archaeological methods that the disease is a very ancient one. Contrary to general opinion, his researches indicate that pulmonary function in this condition, though not normal, is surprisingly adequate. He emphasized (and rightly so) that, since in this disease the major burden of ventilatory function falls on the diaphragm, phrenic interruption, either planned or inadvertent, is contraindicated.

An extremely interesting and valuable paper on "Transverse Tomography of the Chest" was presented by Dr. M. J. Ryan. In essence, the technique of this procedure is to have an x-ray tube angled and stationary, while the patient and the film rotate in the same direction through a rather long exposure (up to 5 seconds). This procedure provides good visualization of the posterior mediastinum, an area that is poorly seen in standard and routine planigraphic x-ray techniques. Dr. Ryan showed several films to illustrate this point, and his paper was enthusiastically received.

The morning of Friday, July 8, was taken up with a symposium on air pollution, an extremely timely subject. The participants were Mr. R. E. Waller of the M.R.C. Air Pollution Unit, St. Bartholomew's Hospital; Dr. I. Taylor, a physician of the London County Council; Professor Donald Reid of Scotland; Dr. I. T. T. Higgins of the Pneumoconiosis Research Unit in Wales, and Dr. P. J. Lawther, Director of the M.R.C. Air Pollution Unit. The symposium was chaired by Dr. J. G. Scadding. The burden of the remarks ran somewhat as follows:

London air pollution consists of smoke, sulfur dioxide and sulfuric acid from the excessive burning of coal, while air pollution in American cities, particularly that of Los Angeles, arises from automobile exhausts. For some months if not years, measures have been taken in London to combat air pollution from smoke, with satisfactory results. The problem of air pollution from automobile exhausts is, comparatively speaking, of lesser importance in London, but in any case has not yet been solved. The problem of air pollution leads naturally to a discussion on a more controversial subject—that of pollution of one's own inspired air by cigarette smoking, and, generally speaking, the remainder of the discussion concerned itself with the relationship of cigarette smoking to lung cancer. Some of the speakers undertook to prove to their own satisfaction, and to that of most of the others present, that the only air pollutant containing carcinogens in any

effective quantity is cigarette smoke . . . not coal smoke, not petrol or gasoline smoke or diesel fumes, *but cigarette smoke*. The symposium stimulated a great deal of discussion, and one of the physicians present emphasized that the Isle of Jersey has *no* air pollution, but that its population, both male and female, are heavy cigarette smokers. The lung cancer rate of Jersey is the highest in Great Britain. Another feature of this symposium was the recognition of a recent surge of interest in the problem of "chronic bronchitis" concomitant with the recession of tuberculosis in interest and importance. In addition to lung cancer, there was a great deal of discussion with respect to the harmful effect of cigarette smoking in "chronic bronchitis", and this led to an attempt at clarification of the differences in concepts of chronic bronchitis in Britain on the one hand and Canada and the U.S.A. on the other. Regardless of conceptual variations and differing terminologies, it was agreed that one of the few useful contributions that physicians could make with respect to the present situation in chronic bronchitis was to discourage cigarette smoking.

The afternoon of Friday, July 8, was occupied in the presentation of three papers of moderate length. Dr. A. J. Eley presented a most interesting epidemiological paper entitled "Indices of the Prevalence of Tuberculosis". Dr. R. H. Andrews then discussed "The Influence of Segregation of the Patient upon the Attack Rate of Tuberculosis amongst Close Contacts in Madras". This presentation embodied his own experiences in a carefully controlled study. It also illustrated that while tuberculosis had lost much of its importance as a medical and socio-economic problem in western countries, this is not the case in the under-developed areas of Asia and Africa.

Following this, Dr. F. V. Welton of Liverpool and Dr. M. P. Flynn of County Westmeath, Ireland, described their experiences with "Compulsory Segregation of Uncooperative Tuberculosis Patients". To an observer from Canada the distaste with which this matter was approached was somewhat surprising. However, the conclusion was inescapable that health authorities in the United Kingdom now regard adequate

legislation in this direction as mandatory. It appears also that public health physicians are prepared to co-operate to ensure the success of such legislation should it be passed.

On the evening of July 8, a reception and dinner were held for the delegates and assembled guests. The food and wines were excellent and the speeches were excellently presented and of a standard of wit and eloquence such as we on this side of the ocean might well attempt to emulate. This last, one hastens to add, applied also to the scientific presentations.

The morning of Saturday, July 9, was occupied in the presentation of papers. Dr. R. S. Francis and Mr. M. P. Curwen presented their report of an investigation of the five-year results in major surgery for pulmonary tuberculosis, undertaken by a joint committee of the British Tuberculosis Association and the Society of Thoracic Surgeons of Great Britain. Like most monumental pieces of work of this type, the findings of this survey had been so long delayed that they seemed to be only of academic importance. However, the results were well presented and, in general, had their greatest value in emphasizing facts which are by now well known to practising chest physicians and surgeons.

The remainder of the morning was given over to a discussion of tuberculosis in children. Dr. Peter Davies of London discussed the "Natural History of Children Exposed to *Mycobacterium Tuberculosis*", while Dr. J. Lorber presented his experience in the "Domiciliary Chemotherapy of Tuberculosis in Children". Under Dr. Lorber's influence, this method of treating childhood tuberculosis has been generally effective, and the meeting was in general agreement with his conclusions.

In summary, as Dr. Scadding succinctly put it, tuberculosis in England is now a disease of middle-aged and older men. In these, it is not the result of a recent infection but is the late result of an earlier one. Such being the case, emphasis has shifted and is continuing to shift from tuberculosis to bronchitis, pneumoconiosis and lung cancer, all of which are bound together by the common denominator of air pollution.

S. J. SHANE

ASSOCIATION NOTES

STANDARDIZED INSURANCE CLAIM FORMS

Since the Standardized Insurance Claim Forms were introduced on October 1, a number of letters have arrived at C.M.A. House which indicate that the use of these forms is not entirely understood. The main points of confusion are: (1) when to use the Attending Physician's Statement (Combined Form CMHIA-1) and (2) how to obtain Assignment forms.

It should be understood that the patient will continue to bring to the doctor a form from his insurance company. This will be one of the standard forms described in the brochure that has been distributed (Procedure for using Accident and Sickness Claim

Forms). If the doctor does not wish to use the form brought by the patient, he can use the Combined Form, supplied by the C.M.A., for settling any claims for medical services.

Although it is expected that in most instances an "Assignment" will be printed on the back of the standard form brought in by the patient, doctors wishing a separate Assignment Form should reproduce it from the wording found in the brochure of instructions.

There will probably be a transition period of a few months during which most companies will gradually introduce the forms, and the wrinkles in their use will be ironed out. The co-operation of the profession in using these forms will be most appreciated.

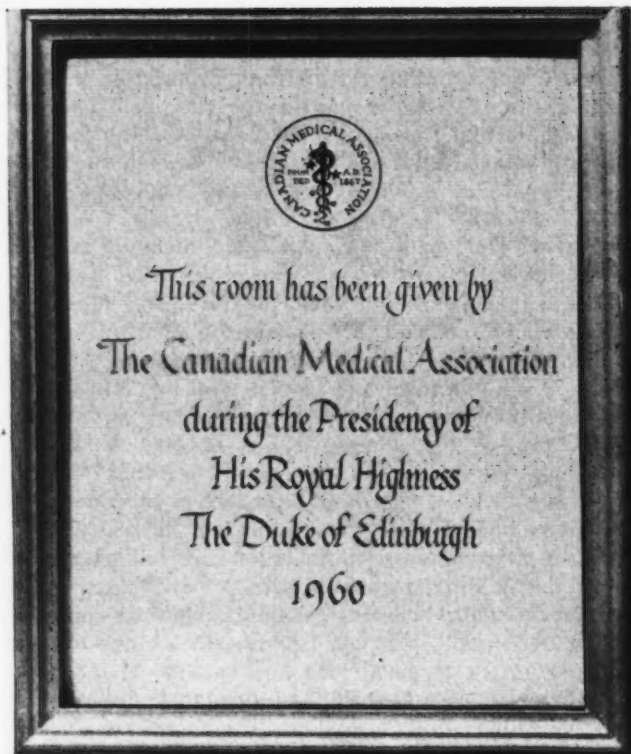
THE CANADIAN MEDICAL
ASSOCIATION ENDOWS ROOM
IN LONDON HOUSE

Nestled in the Heart of England's capital city, on one of its historic streets, stands an impressive structure called "London House". This institution provides residential accommodation for Commonwealth postgraduate students, from all faculties, who are desirous of furthering their studies in the United Kingdom.

In the autumn of 1959, Dr. E. K. Lyon of Leamington, Ontario, who was then Deputy to the President of the C.M.A., H.R.H. The Duke of Edinburgh, and Dr. M. S. Douglas of Windsor, Ontario, Chairman of the General Council of the C.M.A., paid a visit to this well-known Commonwealth landmark. The two doctors were immediately impressed with the fine quality of accommodation provided for postgraduate students, including many Canadian M.D.'s. Their interest developed into a recommendation that the C.M.A. show its tangible appreciation to London House by endowing one of the rooms in the residential quarters. Needless to say, this recommendation was quickly and unanimously passed by the C.M.A. Executive Committee.

The Patrons of London House are Her Majesty The Queen, and Her Royal Highness The Duchess of Gloucester. Its Chairman is Marshal of the Royal Air Force, The Right Hon. The Viscount Portal of Hungerford.

Canadian medical students residing in London House will now see a framed vellum, a photograph of which is reproduced on this page, on the door of one of the rooms of the institution, commemorating the C.M.A. gift. This endowment is one of many donated by organizations, associations and individuals as a token of their appreciation to the Dominion Students' Hall Trust, on behalf of Commonwealth postgraduate students who have had the opportunity of staying at London House.



GUIDING PRINCIPLES

Since the C.M.A.'s booklet "Guiding Principles for the Provision of Occupational Health Services" was published last year, the demand for it has been unprecedented. This booklet outlines briefly the factors that should be considered in establishing an industrial health service in industry. It is useful to physicians, management and labour, as well as the many health personnel who provide the service.

Copies of this booklet may be obtained by writing the General Secretary, The Canadian Medical Association, 150 St. George Street, Toronto 5.

OBITUARIES

DR. AARON J. COUCH, aged 59, died October 5 in Toronto General Hospital. He graduated from the University of Toronto in 1923 and had practised in Mount Forest for the past 25 years where he was coroner and medical officer of health.

Surviving Dr. Couch are his widow, a son and three daughters.

DR. JOHN IRWIN HUMPHRIES, aged 61, died October 4 at his home in Windsor, Ont. A graduate of the University of Western Ontario in 1930, he had practised since then in Windsor.

Surviving are his widow, a daughter, and a brother, Dr. James H. Humphries of Short Hills, N.J.

DR. ALFRED E. JUTRAS, aged 86, died October 16 in Sacré-Coeur Hospital in Plessisville, Quebec. A

graduate of Laval University in 1906, Dr. Jutras had practised in Laurierville and Plessisville.

Surviving are his widow and one son.

DR. JOSEPH E. LAVOIE, aged 88, died October 12 in Mont-Joli, Quebec. After graduating from Laval University in 1898, Dr. Lavoie practised medicine in Mont-Joli, and was mayor of that town for many years. He was vice-president of St. George Sanatorium until last September.

DR. EDWARD MOUNTJOY PEARSE, aged 87, died September 28 in Shaughnessy Hospital, Vancouver, B.C.

Dr. Pearse graduated from Bristol University in England and served as a surgeon in the Boer War. He came to Victoria, B.C., served overseas during the First World War and later served in several B.C.

hospitals. During World War II he was in charge of a wing at St. Martin's Hospital in Bath, Somerset, England.

Surviving are his widow, a daughter and a son.

DR. STUART McDOWALL POLSON, aged 75 died in Kingston, Ontario, on October 5. He was the son of Neil Currie Polson, a former mayor of Kingston. Dr. Polson graduated in medicine from Queen's University in 1910, winning the gold medal for surgery. From 1910 to 1914 he interned at the Lincoln Hospital and Manhattan Eye and Ear Hospital, New York and then studied in Vienna.

During the First World War, he served in England, Egypt and France. At the outbreak of World War II Dr. Polson headed the army and air force recruiting examination board at Kingston and later commanded the Kingston and Barriefield Hospital. After serving as medical officer at Petawawa Military Camp, Lieut.-Col. Polson became commanding officer of Regina Military Hospital.

L.A.C.

DR. CYRUS WILLIAM HENRY SLEMON, aged 84, died October 14 in Bowmanville where he had practised for the past 35 years.

Dr. Slemon graduated from the University of Toronto in 1906. He is survived by his widow, a daughter, Mrs. C. Roy Slemon, wife of Air Marshal Slemon, and three sons, Dr. Harold V. Slemon of Toronto, Boyd Slemon of Niagara Falls and Dr. Keith Slemon of Bowmanville.

DR. NORMAN SLOAN, aged 43, died suddenly at Doctors' Hospital in New York on October 6.

A graduate of the Manitoba Medical College in 1942, he served during World War II in the R.C.A.M.C. and worked under Dr. Wilder Penfield at the Montreal Neurological Institute. He received degrees in psychiatry and neurology there and at Columbia University in New York.

For the past several years he had practised as a psychoanalyst in New York.

Surviving are his mother and a brother.

PUBLIC HEALTH

SUMMARY OF REPORTED CASES OF NOTIFIABLE DISEASES IN CANADA*
 ISSUED BY THE PUBLIC HEALTH SECTION, DOMINION BUREAU OF STATISTICS

Disease	Week ended (1960):				Cumulative total since beginning of year	
	Sept. 17	Sept. 24	Oct. 1	Oct. 8	1960	1959
Brucellosis (Undulant fever).....(044)	8	—	5	1	108	91
Diarrhoea of the newborn, epidemic.....(764)	1	—	—	—	38	76
Diphtheria.....(055)	1	1	—	4	28	21
Dysentery.....(045, 046, 048)	51	59	70	32	2,206	967
(a) Amoebic.....(046)	—	—	—	—	2	2
(b) Bacillary.....(045)	26	54	45	30	1,867	830
(c) Other and unspecified.....(047, 048)	25	5	25	2	337	135
Encephalitis, infectious.....(082.0)	1	—	—	—	5	17
Food poisoning:.....(049.0, 042.1, 049.2)	3	16	13	10	995	643
(a) Staphylococcus intoxication.....(049.0)	—	—	—	—	309	15
(b) Salmonella with food as vehicle of infection (042.1)	3	12	7	10	650	500
(c) Unspecified.....(049.2)	—	4	6	—	36	128
Hepatitis, infectious (including serum hepatitis).....(092, N998.5)	100	252	79	114	4,233	3,648
Meningitis, viral or aseptic.....(080.2, 082.1)	22	28	31	23	496	692
Meningococcal infections.....(057)	6	3	3	2	132	153
Pemphigus neonatorum (Impetigo of the newborn) (766)	—	—	—	—	7	2
Pertussis (Whooping cough).....(056)	182	170	143	106	4,645	5,196
Poliomyelitis, paralytic.....(080.0, 080.1)	37	41	25	35	629	1,496
Scarlet fever and Streptococcal sore throat....(050, 051)	128	157	162	136	17,382	16,719
Tuberculosis:†§.....(001-019)	115	116	172	112	4,766	4,923
(a) Pulmonary.....(001, 002)	90	93	148	82	3,707	3,815
(b) Other and unspecified.....(003-019)	9	10	16	8	448	389
Typhoid and Paratyphoid fever.....(040, 041)	13	12	2	11	277	494
Venereal diseases:.....(020-039)	439	422	404	328	13,572	12,988
(a) Gonorrhoea.....(030-035)	399	379	348	289	12,009	11,331
(b) Syphilis.....(020-029)	40	43	56	39	1,560	1,650
(c) Other†.....(036-039)	—	—	—	—	3	7

*Figures for the Yukon are received four-weekly and are, therefore, shown in the cumulative totals only.

†Including chancroid, granuloma inguinale and lymphogranuloma venereum.

‡Ontario data excluded from analysis.

§Newfoundland and Nova Scotia data included in cumulative totals only

BOOK REVIEWS

A CLINICAL PROSPECT OF THE CANCER PROBLEM. D. W. Smithers, Professor of Radiotherapy in the University of London. 232 pp. Illust. E. & S. Livingstone Ltd., Edinburgh and London; The Macmillan Company of Canada Limited, Toronto, 1960. \$6.35.

This is the introductory volume to a large series of monographs—complete, in preparation or planned—under the generic title "Neoplastic Disease at Various Sites". Each volume is, or is to be, edited by a well-known authority in each specific field, and Dr. Smithers, the editor of this introductory volume, is the General Editor.

The objective of this volume is clearly to make us divest ourselves of outworn theories and to take a completely new and unbiased look at the cancer problem. It states that while the more special clinical volumes "are intended to be factual and particular, without being too controversial, this volume is intended to be general, speculative and philosophic and to provoke discussion". It demonstrates, however, that a speculative and philosophical approach to a problem with so many facets can be much more stimulating—even disturbing—when speculation and philosophy are born of profound knowledge and wide clinical experience.

This volume is not, by any means, written only for those who treat cancer. Though some non-clinical workers will dislike it, it is, nevertheless, a book for all doctors. If they read for knowledge they will be well rewarded; if for pleasure, the unbiased will find delight. Those who have found considerable haziness, if not conflict in thought, respecting the fundamental aspects of clinical cancer, and who seek a reasonable and coherent philosophy, should find one here. It may be in violent conflict with much non-clinical philosophy currently being advanced, but it will be more satisfying to those who have been conscious of the barrenness of most of the activity that has been based on outworn cancer creeds, and who have felt the need for a different approach. There are, of course, some things which experienced men may question, but there is so much that is reasonable to the thoughtful clinician that anything he finds to question, he questions with respect.

Its introduction should be read with care. There follow 11 unusually interesting chapters and a general summary. From the latter a few extracts will give some indication of its general nature and stimulate one's appetite for more:

"Scientific understanding is not the result of the accumulation of many observations." He quotes Einstein: "I think that theory cannot be fabricated out of the results of observation, but that it can only be invented."

"The general theory which regards cancer as a specific disease process due to a single intracellular evil advancing relentlessly cell by cell, without regard for the laws which govern the behaviour of normal cells, has been discredited."

"This book has attempted to set out the case against the most generally accepted, but none too precisely stated, views of cancer and to present a clinical approach towards the expression of a more embracing theory."

If one has ever doubted whether the philosophy upon which most of our research effort is based, is even reasonably sound, he will find much here to help his thinking. Whether one subscribes or not, one must conclude that this well-written book is courageous, reflective and stimulating, and in the present impasse in the solution of the cancer problem, timely.

DISEASES OF THE NAILS. V. Pardo-Castello and Osvaldo A. Pardo. 277 pp. Illust. 3rd ed. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1960. \$9.25.

This is the long-awaited third edition of this classic book which first appeared in 1936 and was revised just five years later. It is a manual-sized volume containing a comprehensive account of the latest knowledge pertaining to a rather obscure and often neglected field. The authors have done much to correct this deficit, and the information they provide is derived both from their own prolonged observations and the medical literature cited in the extensive references which occupy 32 pages at the end of the book. This book should certainly be in any adequate reference library but can hardly qualify for the book shelf of, or even frequent perusal by, a general practitioner or medical student. It is one of those numerous professional publications of quality but of limited appeal which is characteristic of the publisher. As such, it is an invaluable reference work for the dermatologist and should again prove indispensable for the podiatrist.

The glossary of ungual diseases, as contained in the table of contents, is quite impressive and is as extensive a list as can readily be found anywhere in the English literature. However, the reason for spelling the same apparent root as "nychia" in most places and as "nichia" in some others remains obscure to this reviewer. As with any adequate text pertaining to diseases of the skin or its appendages, suitable illustrations are mandatory and this book presents over 100 fine photographs which are more than adequate and which are well integrated into the context.

INTRODUCTION TO HEALTH STATISTICS. Satya Swaroop. 289 pp. Illust. E. & S. Livingstone Ltd., Edinburgh; The Macmillan Company of Canada Limited, Toronto, 1960. \$6.75.

In this volume the author presents the definitions of various terms in health statistics as recommended by the Expert Committee of the W.H.O. and gives in much detail the role of statistics in public health; the content, the collection, processing, analysis and presentation and, as well, the organization, administration and legislation in relationship thereto. He refers to many sources (very few Canadian) and presents many data (very few Canadian), some by way of illustration, others in the appendices, providing highly informative comparisons and contrasts. Writing from a long and varied experience, the author points out limitations of various procedures in current practice; this adds significantly to the value of the book.

The publishers are to be congratulated on the general set-up of the volume—the good printing, excellent reproductions and freedom from any typographical errors.

(Continued on page 1127)

VIEWS

Prepared
by the Department of
Medical Economics.
The Canadian
Medical Association

ON THE ECONOMICS OF MEDICINE

NOV. 19, 1960, NUMBER 12

Our sources of information are private communications and published comments in medical journals and the lay press. These are usually reliable but incorrect quotation or interpretation is always possible.

The following editorial appeared in the October 22nd edition of the Regina Leader-Post.

"During the election campaign, the medical profession took direct issue with the government over certain features of its proposed compulsory government-controlled state medical care plan. The profession did not oppose the prepayment for medical services in principle. What it did oppose was the method advanced by the government for achieving this objective.

The resolution on medical care passed by the 53rd annual convention of the Saskatchewan College of Physicians and Surgeons in Regina this week and the announcement the College will propose an alternative to the government plan in submissions to the 12-man advisory committee indicate the medical profession now will attempt to 'sell' its plan for prepaid medical care to the government.

This is the sound approach in the interest of devising a medical care plan which will be effective at the same time that it is within our financial means.

The resolution provides a glimpse of the basis of the alternative that the College brief will offer. The preamble reiterates the profession's opposition to 'a compulsory comprehensive government-controlled medical care plan.' It also 'recognizes that a small segment of the population requires assistance in the provision of medical care.'

The resolution itself is couched in these words:

'Be it resolved that the College of Physicians and Surgeons of Saskatchewan endorses assistance in the payment of premiums of needy participants in a medical care plan provided by existing prepaying agencies and administered at the municipal level.'

In essence, what the medical profession apparently envisages, is the extension of the present voluntary schemes so that financial need will not be an obstacle to obtaining medical care. This is the avowed aim of the government scheme. But its adoption would involve the rearing of a grandiose state edifice which would saddle taxpayers with a heavy financial load.

(over)

NEWS AND VIEWS on the economics of medicine (cont'd)

The present voluntary schemes have their limitations. In most instances, persons with chronic ailments are not covered, nor are those 65 years of age and older. Also, persons joining most of the voluntary schemes are not covered for disabilities of which they were aware when they enroll. These weak spots in the voluntary schemes would have to be plugged before the medical profession's proposal would be acceptable. However, the college submission to the committee undoubtedly will propose that this be done.

What the people are interested in primarily is protection against crippling medical bills at the lowest cost. After the experience with hospitalization, and the ever mounting annual financial burden of this government service, the sensible procedure would be to try an alternative such as the medical profession envisages.

One of the major attractions of the College plan is that the element of compulsion and regimentation will be avoided. The idea is abroad that universal coverage cannot be achieved without compulsion and the interference with personal liberties that this involves. This is not necessarily the case. In Manitoba, for example, compulsory auto insurance was not adopted. But motorists were required to establish financial responsibility to meet claims in the event of accidents. In consequence, virtually all the motorists in the province now are insured.

Once Saskatchewan had adopted a plan such as the medical profession apparently envisages, no doubt most of those able to pay the premiums for voluntary coverage would do so, while the government would subsidize the premiums of the needy administered at the municipal level. In the end, virtual universality of coverage probably would be achieved without compulsion.

Premier Douglas has listed five principles to apply to an 'acceptable' medical care plan. It must be compulsory, prepaid, acceptable to both the medical profession and the public, of high quality and under government control.

There surely is room for compromise, and there may have to be some give and take if the proviso that the scheme must be acceptable to the medical profession is complied with. Compulsion is not absolutely essential to achieve virtual universality of coverage. The government might give ground on its first demand. The only other point at issue would be the requirement of government control. This is based principally on the theory that if the taxpayers' money is involved, the government must maintain control. However, at present, social aid is administered by the municipalities, with the costs being shared by the three levels of government—municipal, provincial and federal. The control the provincial government exercises is indirect, mainly through inspection of the payments as a safeguard against abuse. A similar procedure could be followed under a medical care plan without the necessity of rigid government control."

(Continued from page 1024)

PYELONEPHRITIS. Fletcher H. Colby, Consultant, Massachusetts General Hospital. 214 pp. Illust. The Williams & Wilkins Company, Baltimore; Burns & MacEachern Ltd., Toronto, 1959. \$7.50.

Those who have read Dr. Colby's "Essential Urology" appreciate his ability to describe a subject pithily. This faculty is once again evident in his recently published text "Pyelonephritis". Justification for publishing a text on pyelonephritis hardly seems necessary, for the subject, because of its seriousness, has been commanding increasing interest in recent years. Although progress is being made towards a better understanding of this disease, it remains one of the most important problems of modern medicine. The bibliography that has accumulated through the years is very extensive. To assess this published material accurately and adequately requires an authority with Dr. Colby's vast personal experience. The union of the latter with an ability to write clearly and concisely has produced a small, fact-filled, easily read text. The author has kept the coverage of the subject simple and non-controversial but nonetheless complete.

A brief opening chapter dealing with the history of pyelonephritis is followed by one dealing with the embryology, anatomy and physiology of the kidney. In separate chapters, the author then describes the incidence and the etiology of the disease. In describing the acute form of pyelonephritis separately from the chronic form, the author tries to emphasize the importance of early and adequate treatment of acute pyelonephritis in order to prevent the disease from becoming chronic, with its attendant serious complications.

Pyelonephritis in infancy and childhood, in diabetes and in pregnancy is described in individual chapters, and here, as in other chapters, brief histories, excellently reproduced, explanatory x-ray photographs, and photographs of pathological specimens are liberally included. The recent material on the relationship of pyelonephritis and hypertension is included in a separate chapter. The concluding chapter is titled "Pyelonephritis and the Urologist". The author stresses the importance of asepsis in urological instrumentation to prevent the introduction of bacteria, thereby initiating pyelonephritis.

Students and general practitioners will find the book extremely valuable. The bacteriology and chemotherapy of pyelonephritis are current and completely covered. A highlight of the book is the very clearly reproduced and quite comprehensively used x-ray photographs.

TO KNOW THE DIFFERENCE: A Constructive Inquiry into the Nature and Treatment of Alcoholism. Albert D. Ullman. 239 pp. St. Martin's Press, New York; The Macmillan Company of Canada, Toronto, 1960. \$5.25.

As a sociologist going from the general to the particular, this author summarizes his conclusions in respect of the drinking program that creates the alcoholic as follows:

"1. There must be some desire to drink accompanied by anxiety about it. The anxiety may be caused by anti-drinking attitudes learned from others, or as a result of earlier drinking experiences.

"2. There often occurs at the same time a problem which is made more acute in the drinking situation: for example, being afraid that one will not act in a manly fashion when drinking.

"3. Enough alcohol must be taken in on such occasions that relief from anxiety stemming from any cause whatsoever is obtained."

The number of experiences of the above type to create addiction is "x". It will be apparent from this that the sociologist and the psychiatrist have areas in common as well as of divergence, in explaining the way in which this type of addiction known as alcoholism arises. The biochemist and the physiologist are seeking an explanation within the body which precedes both the "thinking" pattern and the "behaviour" pattern. Up to the present time the cause of alcoholism is unknown, but, while research into that phase of it is proceeding, an accumulating mass of clinical knowledge indicates that it may be treated with success, though empirically.

The significant feature of this book, and one which is quite unique, is the author's approach to prevention of alcoholism. Apart from the more general and traditional means, he suggests one for the growing individual within the family. Needless to say, this will not meet with universal approval; in fact, it will be met with stern opposition. It would seem impractical as well, even from the standpoint of sociological theory, until such time as emotional attitudes in respect to the use of beverage alcohol are reduced to a point of cool objective appraisal. This is not likely to happen for some considerable time.

The close and intimate knowledge of the individual alcoholic and his reactions is apparent throughout the book, and this feature, in itself, commends it for careful study. It will prove helpful and valuable not only to the social scientist but to the physician, the nurse, the jurist, in fact to all who are actively engaged in any phases of the alcoholic problem.

AEDES AEGYPTI. The Yellow Fever Mosquito, Its Life History, Bionomics and Structure. Sir Rickard Christophers. 738 pp. Illust. Cambridge University Press, 1960.

Christophers' monograph on *Aedes aegypti* is a scholarly contribution to our knowledge of one of the most important disease vectors in the world. The mosquito is widespread throughout all the warm parts of the earth, and one of the viscerotropic viruses, that of dengue, is equally distributed. The more important related virus, that of yellow fever, fortunately is not, but is confined to South and Central America, and Africa where it exists essentially as an endemic sylvatic form. Why it has not spread to tropical Asia with its teeming millions has never been satisfactorily explained. The mosquito is there and has been shown to be susceptible. It may be that travel hazards in the past have helped to limit the movements of infected men and infected mosquitoes, but the jet age which has reduced the traversing of miles to a matter of seconds is swiftly removing these hazards, and *Aedes* has recovered all the potential menace which it had in the days of wooden ships. It is a subject of supreme importance to all interested in preventive medicine. Christophers' work is for the specialist. It is encyclopedic in its scope and for that reason it is not completely up-to-date in some relatively minor matters, but it provides a background of fundamental knowledge for all who study mosquitoes and the diseases they carry. The Cambridge University Press have done their usual excellent work in producing the volume and it is well and amply illustrated.

THE HEART IN INDUSTRY. Edited by Leon J. Warshaw, Consultant in Occupational Health, New York. 677 pp. Illust. Paul B. Hoeber, Inc., New York, 1960. \$16.00.

The increasing number of publications dealing with heart disease in the industrial environment testifies to the growing interest in this subject. This volume describes for the industrial physician the clinical problems he is likely to encounter, and for the private physician, both the problems of the employee with heart disease and those of the employer who may have to take such problems under consideration. It does both of these tasks admirably.

An introductory chapter by the editor is followed by a detailed and important discussion by Brouha on the physiological effects of work on the heart. This should be required reading for everyone, whether or not he is interested in the industrial aspects of heart disease. Detection of cardiac disease, placement of the heart patient, rehabilitation, emergencies and the psychiatric aspects of heart disease are all given full consideration. Peripheral vascular disease is not neglected. The cardiac patient in several occupational situations, such as flying and farming, is discussed.

A particularly interesting chapter is that by Spain, dealing with the relationship of physical and emotional stress to coronary disease. Those enamoured of any particular theory as to their relationship should peruse it carefully. The section on workmen's compensation opens with a short history, and then points out the legal problems involved in the fair administration of the laws and regulations. The difficulties in establishing the causal relationship between cardiac disease and occupational strain or accidents is repeatedly stressed.

This volume can be recommended to all physicians and lawyers having even a remote connection with heart disease in industry.

PAEDIATRIC PRESCRIBER. Pincus Catzel. 223 pp. Blackwell Scientific Publications, Oxford; The Ryerson Press, Toronto, 1959. \$4.75.

This pocket-sized volume has been compiled and written for the purpose of supplying the practitioner with a readily available source of information regarding drug dosages for infants and children. The method of presentation of material is in the form of systems; e.g. cardiovascular, genitourinary, and gastrointestinal. This, along with an extensive and complete index, allows for easy reference to any given product. Brief sections are presented on the subjects of nutrition, poisons, fluids and electrolytes, and milk products. The appendix contains a useful section on weights and measures.

The book as a whole represents a valuable collection of material which is easily accessible. The drug dosages are well done and reliable. Comments on therapy, on the other hand, are in many cases controversial and would better have been omitted. The sections on poisons and electrolytes, again, are useful for rapid reference purposes but are not intended to take the place of standard works on these subjects.

At the present time most of the material represented in this book is available to the physician from other sources. Contrary to the statement in the Introduction of the book that "standard works, including textbooks of paediatrics, are notoriously vague in detailing doses for children", there are textbooks which contain much of the same material though in slightly less detail.

However, from the point of view of gathering a great deal of useful information under one cover in a pocket-sized edition, one must congratulate the author for a commendable job. This edition is recommended for the use of house officers in hospital, as well as practising physicians, as a useful and practical book.

ZEHN JAHRE RONTGENSCHIRMBILDUNTERSUCHUNGEN IN DER BUNDESREPUBLIK DEUTSCHLAND (Ten Years of Fluoroscopy in West Germany.) Gertraut Reinecke. 118 pp. Illust. Georg Thieme Verlag, Stuttgart, W. Germany; Intercontinental Medical Book Corporation, New York, 1959. \$4.65.

This book is devoted to a review of the methods and results of photofluorography (mass chest radiography) in the Federal Republic of Germany. The author reviews first the position of photofluorography in various countries of Europe and overseas and discusses at some length the status of this method in East Germany.

Six of the West German States have introduced a program of compulsory mass chest radiography. Such a program is enforced in the states of Hamburg, Schleswig-Holstein, Württemberg-Baden, Bremen, Lower Saxonia and Bavaria. A voluntary system of chest radiography is in existence in West Berlin, Hessen, Rhineland, Searland and Westphalia. In 1955 there were 368,825 people in the West German Republic suffering from active pulmonary tuberculosis. This constitutes 73.3 per 10,000 population. In the same area in the year 1955, 77,808 fresh cases of pulmonary tuberculosis were reported of which 22,012 were reported in Westphalia. In the states with a compulsory chest examination, 85 to 90% of the population is covered by the mass chest surveys, against 30 to 40% of the population where the voluntary system is in operation. It is interesting to note that the cost of an individual examination was DM 0.75 (approx. 18 cents) in the states with compulsory examination, compared with a cost of DM 1.25 (approx. 30 cents) in the others. The cost of detection of an individual case of active tuberculosis was approximately \$60 in the first group compared with an approximate cost of \$200 in the second group.

This monograph, which is one in a series of books devoted to the problem of tuberculosis, contains many valuable data for those engaged in the detection and treatment of tuberculosis.

CONTROL OF COMMUNICABLE DISEASES IN MAN: An Official Report of the American Public Health Association. 234 pp. 9th ed. The American Public Health Association, New York, 1960. \$1.00.

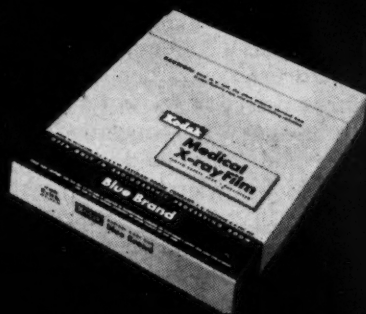
This well-known pocket-sized manual is designed to provide ready reference for physicians, dentists, veterinarians, nurses, medical students and sanitarians. Each chapter has had considerable revision, particularly those on anthrax, histoplasmosis, influenza, poliomyelitis, rabies, tetanus, and toxoplasmosis. New chapters have been added on aseptic meningitis and its relationship to poliomyelitis, acute respiratory disease, and staphylococcal infections and there are four new chapters on arthropod-borne infections. This is an excellent reference text approved in principle by the United States Public Health Service, the Surgeons General of the Army, Navy and Air Force, Association of State and Territorial Health Officers, Ministry of Health of Great Britain and the World Health Organization.

(Continued on page 1130)

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MODERN SCIENTIFIC ASPECTS OF NEUROLOGY. Edited by John N. Cumings, Professor of Chemical Pathology, Institute of Neurology, The National Hospital, Queen Square, London. 360 pp. Illust. Edward Arnold (Publishers) Ltd., London; The Macmillan Company of Canada Limited, Toronto, 1960. \$11.25.

In this compact book, Professor John Cumings of the National Hospital, Queen Square, London, has brought together a series of ten up-to-date review articles by eminent research workers of Britain and western Europe. Here is summarized much of the new and highly technical work on the biochemistry and ultra-structure of nervous tissue.

There is a splendid review of electron microscopy of myelin, nerve cells and tissue, by F. S. Sjostrand of Stockholm, and on nerve endings in striated muscle by Coers of Brussels. Nucleic acids as structural constituents of nerve cells are discussed in great detail by Einarson, and the chemistry of epilepsy and convulsive states is summarized by Derek Richter. Four chapters deal with the chemistry of lipids in relation to normal myelin, the demyelinating diseases, and the lipidoses.

There are also chapters on the esterases of the nervous system (R. H. S. Thompson) and x-ray diffraction analysis of nerve myelin (J. B. Finean).

Each chapter has an extensive bibliography, and there is a comprehensive index. The photographs, both black-and-white and in colour, are of excellent quality.

This book will find its particular use in the library of the neurochemist, the neurohistologist and the neuropathologist who is trying to keep up with fundamental work in fields closely related to his own. Many of the chapters can only be appreciated by a student who is familiar with advanced biochemistry and this emphasizes the fact that some of the most important advances in neuropathology today are being made by the biochemists.

The book should also have an intellectual appeal for the clinical neurologist who is eager to keep pace with the ever-widening frontiers of neurological research.

THE MULTILINGUAL MANUAL FOR MEDICAL INTERPRETING. L. R. M. Del Guercio, St. Vincent's Hospital, New York. 160 pp. Pacific Printing Co. Inc., New York, 1960.

Although translation services of varying degrees of competence are now available in many large city hospitals, the problem of the foreign-born patient with little or no English is still a major one. One is painfully reminded of the importance of history-taking when faced with a person with whom one cannot communicate.

This handbook is an attempt to remedy this defect. Sections on French, Spanish, German, Italian, Polish and Russian, detail in English and the language concerned most of the questions which are likely to arise in history taking. Each question is accompanied by a phonetic aid to pronunciation. To the reviewer these appear to be satisfactory in so far as German and the Provence languages are concerned. Presumably this holds also for the Polish and the Russian.

The questions have largely been phrased so that a "yes" or "no" answer can be utilized. But what does one do when faced with a long detailed answer fired at the questioner with machine-gun rapidity? There is no answer to this except a working familiarity with that language!

This manual is a worthy attempt to overcome a serious handicap in our handling of patients and should be of value if used with diligence.

MEDICAL NEWS in Brief

(Continued from page 1116)

CONTROL OF HOSPITAL STAPHYLOCOCCAL INFECTIONS

Reduction of staphylococcal infections in hospitals can be accomplished more effectively by protecting certain susceptible patients than by trying to control the whole hospital environment, Dr. Leighton E. Cluff of Baltimore stated in a paper presented before the American Academy of Ophthalmology and Otolaryngology which met in Chicago in October. Dr. Cluff's paper, based on a study made at The Johns Hopkins Hospital in 1959, was presented as part of a symposium on "Epidemiology and Control of Hospital Infections." Since the advent of antibiotic therapy, drug-resistant strains of staphylococci have developed which have created serious problems for physicians and hospital staffs. Since treatment with antibiotic drugs is no longer effective against many infections caused by this organism, concentrated efforts have been made to find new means of control. Staphylococcal infections occur most often postoperatively, Dr. Cluff reported. The study at Johns Hopkins showed that 70% of infections were in postoperative wounds although only 40% of the patients in the hospital were surgical patients. Postoperative infection occurred most commonly in patients with neoplastic disease or burns. The type of operative procedure seemed to influence the occurrence of infection. The highest attack rates were in patients treated with radical dissection for carcinoma of the neck; after amputations, many of which were done because of neoplastic disease; and after pneumonectomy, mainly for carcinoma of the lung. Whether or not postoperative infection occurred appeared unrelated to the length of the operation. Infection did occur more often in older persons. Staphylococcal infections in nonsurgical patients also occurred more frequently in patients with certain types of illnesses, particularly cancer, diabetes mellitus, cirrhosis of the liver, dermatitis, and systemic lupus erythematosus. Good surgical care is probably the best means now available for reducing staphylococcal infections in

hospitals. Present antibiotic therapy is inadequate, and sterilization of air, surfaces of rooms, or human beings is not likely to be effective because of the ubiquitousness of the organisms. Control of the problem of staphylococcus infection requires not only new antibiotics, but means of increasing resistance of susceptible individuals to bacterial invasion.

NEW STUDIES IN THE BIOELECTRIC PATTERNS OF MENTAL ILLNESS

A bioelectric aid to diagnosis of certain mental diseases was described by a Moscow psychiatrist, Academician A. V. Snezhnevsky, at the recent joint conference in New York, sponsored by the Soviet Academy of Medical Sciences and the New York Academy of Science. Research studies using an "electroencephaloscope," an instrument capable of recording electrical potential at fifty points on the skull, indicated that the mosaic light patterns so produced were specifically different in patients with different mental diseases, and in the various

stages of schizophrenia. In the latter disease, it was stated that the electroencephaloscopic light patterns were also of aid in predicting the patient's reaction to drug therapy.

After describing the mosaic light pattern produced by this technique in normal individuals and in patients with the various categories of schizophrenia, Snezhnevsky reported on the effects of certain drugs on these distinctive electroencephaloscopic patterns. While most individuals responded to the central nervous system stimulant, piperidol, with increasingly active mosaics, the majority of those with paraphrenic and catatonic schizophrenia did not. When such changes were induced by piperidol, they were eliminated, in reverse order of their appearance, by chlorpromazine. In contrast, the patterns of those with paraphrenic and catatonic schizophrenia showed little or no change after administration of chlorpromazine. In these mental diseases, the progress of clinical improvement, when it occurred, was reflected in the gradual resumption

(Continued on page 34)

CANADIAN JOURNAL OF SURGERY

The January 1961 issue of the *Canadian Journal of Surgery* will contain the following original articles, case reports and experimental surgery:

History of Canadian Surgery: Iceland's gift to Canadian medicine—Ross Mitchell.

Original Articles: Ventricular septal defect: an analysis of 70 cases in childhood surgically treated—W. T. Mustard and G. A. Trusler. Choice of operations for uretero-pelvic obstruction: review of 385 cases—O. S. Culp. Weight bearing by ligaments and muscles—J. V. Basmajian. The nail patella syndrome (hereditary onycho-mesodysplasia)—K. A. McCluskey. Reticulum cell sarcoma of testis—A. Brettler, P. O. Crassweller and J. G. Watt. The clinical use of Polyvinyl sponge (Ivalon) in the repair of oesophageal hiatus hernia—M. Friedman and W. C. MacKenzie. Peritalar dislocation of the foot—J. R. Barber, J. D. Bricker and R. A. Haliburton. Intestinal obstruction due to Lane's ileal kink—J. G. Noble and W. L. Crooks. Hydrocephalus: a shunt between the ventricle and Stenson's duct—D. Parkinson and K. K. Jain. Colocystoplasty for bladder substitution: report on 45 cases—J-P Bourque.

Case Reports: Ventricular septal defect due to non-penetrating chest trauma—W. Sapirstein and W. G. Bigelow. Saccular aneurysm of the ophthalmic artery—D. Parkinson, K. K. Jain and J. B. Johnson.

Experimental Surgery: Surgical technique for homologous transplant of neonatal kidneys in dogs—M. Claman, J. A. Balfour and H. C. Campbell. The healing of untreated experimental penetrating gastric ulcer—M. J. Phillips, S. C. Skoryna, D. R. Webster and D. S. Kahn.

Subscriptions are accepted at the *Canadian Journal of Surgery* offices, C.M.A. House, 150 St. George Street, Toronto 5, Ontario. The subscription rate is \$10.00 a year. Back issues are also available.

MEDICAL NEWS in brief

(Continued from page 33)

of normal bioelectric mosaics, according to Snezhnevsky. The pattern in patients with schizophrenic depression differed in its characteristic mosaic from that of individuals with manic depressive psychoses and was not improved by isoniazid, a drug with antidepressive effects. The results of these investigations were considered to be of interest and worthy of further study, but at the present time this

procedure is still in its preliminary stages and its actual practical value has not yet been established.

THE CENTRAL NERVOUS SYSTEM AND IMMUNE RESPONSE

A role of major importance in the body's defence mechanisms against a variety of diseases was attributed to the central nervous system by Dr. O. V. Kerbikov of

the Second Moscow Medical Institute, and the Soviet Academy of Medical Sciences. Dr. Kerbikov presented his report at a recent New York conference on Pavlovian physiology and psychology, sponsored jointly by the New York Academy of Sciences and the Soviet Academy of Medical Sciences.

According to Kerbikov the body's ability to produce antibodies against pathogenic organisms is affected by factors under the influence of the central nervous system and this ability is altered by mental disease states. For example, catatonic schizophrenics exhibit hypo-reactivity or non-reactivity insofar as antibody production is concerned after inoculation with tularemia toxin or certain strains of staphylococci. Patients with post-encephalitic parkinsonism show a similar depression of antibody production after challenge with these agents. In contrast, it was stated that "oligophrenic" patients, with impairment of higher mental function, produced increased levels of antibodies in response to such antigenic stimuli. However, to react adequately to the challenge of an infecting organism, the function of the lower cerebral centres controlling body temperature, blood flow and respiration apparently must be preserved.

Kerbikov further described the influence on antibody production of various drugs which exert their effect on the central nervous system, noting, for example, that antibody formation is enhanced by chlorpromazine and is apparently depressed by narcotic or sleep-inducing drugs.

In summarizing his assessment of these observations, Kerbikov stated that while it is too early to make broad generalizations, these studies revealed "a rather labile connection between the status of the central nervous system of these patients and their immune response. This connection is partial and indirect. It is rather a correlation than a functional association."

GROUP PRACTICES TRIPLE

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(Continued on page 40)

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MER/29 can be used along with other measures to control anxiety, hypertension, obesity, and other conditions associated with cardiovascular disorders. These include anticoagulants, nitroglycerine, and PETN.

SAFETY DATA. Patients have now been treated with MER/29 for relatively long and continuous periods. In no case has there been evidence of serious toxic effects on the function of any vital organ or system. However, since long-term MER/29 therapy may be necessary, periodic examinations, including liver function tests, are desirable. Side effects (nausea, headache, dermatitis) are rare and have usually been associated with dosages greater than those recommended for effective therapy.

CONTRAINDICATION. Pregnancy. Since MER/29 inhibits cholesterol biosynthesis, and cholesterol plays an important role in the development of the foetus, the drug should not be administered during pregnancy.

SUPPLIED. Bottles of 30 pearl grey capsules.

-
- ... the first cholesterol-lowering agent to inhibit the formation of excess cholesterol within the body, reducing both tissue and serum cholesterol
 - ... no demonstrable interference with other vital biochemical processes reported to date
 - ... convenient dosage: one 250 mg. capsule daily before breakfast
 - toleration and absence of toxicity established by 2 years of clinical investigation

MER/29

(triparanol)

REFERENCES: 1. Hollander, W., and Chobanian, A.: Boston M. Quart. 10:37 (June) 1959. 2. Oaks, W. W., and Lisan, P.: Fed. Proc. 18:428, 1959. 3. Oaks, W. W., et al.: A.M.A. Arch. Int. Med. 104:527, 1959. 4. Lisan, P.: Proceedings, Conference on MER/29, Progr. Cardiovasc. Dis. 2: (Suppl.) 618 (May) 1960. 5. Oaks, W. W.: *Ibid.*, p. 612. 6. Hollander, W., et al.: *Ibid.*, p. 637. 7. Halperin, M. H.: *Ibid.*, p. 631. 8. Toro, J.: *Ibid.*, p. 544. 9. Morrison, L. M.: J.A.M.A. 173:884 (June 25) 1960.

TRADEMARK: MER/29



The Wm. S. Merrell Company, St. Thomas, Ontario

MEDICAL NEWS in brief

(Continued from page 34)

survey shows. A preliminary report on the Public Health Service survey was presented by Dr. S. David Pomrinse, P.H.S. chief of health professions, at the 11th annual meeting of the American Association of Medical Clinics in New Orleans.

In 1946, there were 368 groups of three or more full-time physicians providing services in more than

one medical field of specialty, and with their combined income distributed according to a pre-arranged plan. In 1959, there were 1154 such groups. In both the 1959 study and in a similar study in 1945, 20% of questionnaires were not returned, indicating that there were probably 435 group practices in 1945 and 1385 in 1959. In the 1154 groups responding, there were 10,085 full-time physicians and 1365 doctors serving part-time.

There were 219 multi-specialty groups with fewer than three full-time physicians, with 355 doctors working in these groups full-time and 3062 engaged part-time.

Nationwide, the study showed that 6.21% of all practising physicians were in full-time group practice and 0.85% more were part-time group practitioners. This compares with 2.64% full-time and 0.35% part-time practitioners in 1946.

There have been slight increases in the proportion of groups in the smallest and largest categories since 1946. In 1959, 57% had from 11 to 15; and 11% had 16 or more full-time physician members. The study showed that most newly formed groups are small and tend to grow with age. Of the 1154 multi-specialty groups, 899 (79%) were organized since 1940. The groups reported they planned to add more than 1000 full-time physician members this year.

The P.H.S. survey was conducted with the co-operation of the American Association of Medical Clinics, National Association of Clinic Managers, and the American Medical Association. — *A.M.A. News*, October 17, 1960.

"Are the xanthines effective in ANGINA PECTORIS?"

(Abstract of the paper with above title)

A favorable response was unequivocally demonstrated with aminophylline when administered intravenously to angina pectoris patients. In sharp contrast the author, noted for his original contributions to cardiovascular research, found oral administration ineffective in all patients tested. This suggested that the failure was correlated with sub-threshold theophylline blood-levels obtained with oral administration.

A 20% alcohol-solution of theophylline (Elixophyllin®) has been shown to provide blood levels comparable to those obtained with I.V. administration of aminophylline. This oral preparation and a placebo (identical in appearance, taste and alcoholic content) were

tested by the electrocardiographic response obtained and by a double-blind clinical evaluation.

The author reported: "In the light of these findings, conclusions derived from animal experiments which have classed theophylline as a 'malignant' coronary vasodilator must be rejected for man." Elixophyllin administered orally to 30 patients was effective "not only in control of symptoms but in its modifying action on the electrocardiographic response to standard exercise. The efficacy of this preparation is based on the rapid absorption and attainment of high blood levels made possible by the vehicle employed."

(Russek, H. I., *Am. J. Med. Sc.* Feb., 1960)

CLINICAL REFERENCE DATA ON

ELIXOPHYLLIN®

FORMULA: A hydro-alcoholic solution of theophylline. Each 15 cc. (1 tablespoonful) contains 80 mg. theophylline (equivalent to 100 mg. aminophylline) and 20% ethyl alcohol.

ORAL DOSAGE: First 2 days—doses of 45 cc. t.i.d. (before breakfast, at 3 P.M., and on retiring).
Thereafter—doses of 30 cc. t.i.d. (at same times).

AVAILABLE: Prescription only; bottles of 16 fl. oz. and 1 gallon.

SPECIAL REPRINT: Reprint of Dr. Russek's paper abstracted above on request.

Sherman Laboratories
Windsor, Ontario

FESTIVAL INTERNATIONAL PERMANENT DU FILM MEDICO-CHIRURGICAL & SCIENTIFIQUE

La séance de sélection des films destinés à figurer dans le programme de la 9ème session du *Festival International Permanent du Film Medico-Chirurgical & Scientifique* aura lieu à Paris le 5 décembre prochain. Cette manifestation, comportant annuellement huit séances de projection dans les principales villes de Faculté de Médecine françaises, est la seule permettant au participant de faire apprécier leurs œuvres par plus de huit mille médecins français.

Au cours des quatre précédentes années des films allemands, américains, anglais, belges, brésiliens, canadiens, danois, finlandais, hongrois, italiens, japonais, marocains, tchécoslovaques et français ont été présentés par l'Association, et nous ne doutons pas que vous prendrez dès maintenant toutes dispositions pour assurer, pour la date ci-dessus, la participation de

(Continued on page 43)

MEDICAL NEWS in brief
(Continued from page 40)

votre pays au *Festival International Permanent du Film Medico-Chirurgical & Scientifique*.

Exhibiteurs prospectives sont près de notifier l'Association de bien vouloir s'adresser à la liste des films qu'ils désirent voir participer à cette manifestation avec les indications de leur métrage et des caractéristiques techniques, en utilisant des fiches signalétiques du modèle joint.

Les films que nous expédions (par le canal du Ministère des Affaires Etrangères de chaque pays pour les films étrangers) doivent obligatoirement être inédits en France, non publicitaires, être du format 16mm substandard et accompagnés d'un commentaire dactylographié en langue française (pour les films étrangers).

Les films sont à expédier soit par le canal du Ministère des Affaires Etrangères de votre pays, soit à The American Express Company Inc. II, rue Scribe Paris 9e, en mentionnant: pour le Compte de l'Association Nationale des Médecins Cinéastes et des Cinéastes Scientifiques de France, 23, bld de Latour-Maubourg Paris 7e, soit, pour les films français, directement au siège de l'Association.

**TORONTO STUDY OF
HEALTH CARE
NEEDS OF
UNION MEMBERS**

A team of interviewers is preparing a medical chart of 1300 union families representing a cross-section of organized labour in the Toronto area. The chart is expected to provide a detailed picture of the health needs, medical services used and health care protection now available to union members and their families.

The study will bring Toronto's organized labour movement one step closer to its goal of a labour health centre that will provide comprehensive medical care for those it will enrol.

The project has the financial and moral support of 55 unions. The health program is keyed to group medical practice under which a team of general practitioners and specialists will serve as staff members of the centre. The goal is quality-controlled medical care that will embrace preventive medi-

cine, diagnostic service, a curative program and rehabilitation.

If the Toronto Labour Health Centre organizing committee succeeds in its task of establishing a labour health centre, it will lead to drastic changes in existing medical care plans. The unions will seek employer co-operation to scrap existing arrangements (both Physicians' Services Incorporated and insurance company plans). These now provide varying measures of medical care protection for those covered by union-management agreements. It was the unions' dissatisfaction with the scope of these plans that prompted the move to set up a union-sponsored health centre.

Theodore Goldberg of the research department of the United Steelworkers of America, and executive secretary of the labour centre committee, has estimated that existing plans cover only 20 to 45% of medical costs of union members.

The family survey now under way will measure more precisely the effectiveness of negotiated plans. The survey will determine family incomes and indicate the use of general practitioners, specialists, clinics and community health services.

The study will seek to find out the individual and family expenditures on health and medical services and medical plans.

"We think group practice is the best way of providing comprehensive quality care most economically," Mr. Goldberg said. "Employers and employees have an identity of interest in making their welfare dollar go as far as possible."

The health centre will place emphasis on preventive medicine. The existing plans pose a barrier to preventive medicine by discouraging routine check-ups. Some plans impede early diagnosis and treatment by requiring a substantial deductible payment before benefits become available.

The developmental stage of the health program is being guided by Dr. J. E. F. Hastings of the Department of Public Health of the University of Toronto's School of Hygiene. Dr. Hastings has been retained as consultant.

The blueprint for the health centre is expected to be ready next summer. The labour movement will then have to decide whether

(Continued on page 44)

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of infection
— broad
application
combined
with
safety

For most infections seen in your practice, particularly those affecting the respiratory, gastrointestinal or urinary tracts, "TRULFACILLIN" is a practical prescription in terms of safety, effectiveness and economy.

The very real danger of fungal overgrowth so often following use of broad-spectrum antibiotics is not encountered with "TRULFACILLIN"—and the danger of superinfection by resistant organisms is reduced. Moreover, the addition of sulfonamides to penicillin delays or prevents the development of drug resistance by sensitive organisms—a growing problem with broad-spectrum antibiotics.

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TRIPLE SULFAS and PENICILLIN

the
practical
prescription



Charles E. Frosst & Co.
MONTREAL CANADA

MEDICAL NEWS in brief
(Continued from page 43)

it is prepared to invest the funds needed to bring the project to fruition.—*The Globe and Mail*, Toronto, October 3, 1960.

SYMPOSIUM ON
"CONTROL OF THE MIND"

A three-day symposium on "Control of the Mind" will be held at the University of California Medical

Center in San Francisco, January 28-30, 1961. This will be presented by the University of California Medical Center and University Extension with financial assistance of the Schering Foundation. Guest speakers will include composer Aaron Copeland, who will speak on Historical Perspectives of the Psychological Response to Music; Arthur Koestler, author, *Totalitarianism in Control of the Mind*; Harold D. Lassell, professor of law and political science at Yale University, *Communication and the*

Mind; McGeorge Burdy, dean of the faculty of arts and sciences, Harvard University, *Political Education and the Mind*; Hans J. Eysenck, professor of psychology, University of London, *The Individual Response to Drugs*; Moses Finley, lecturer in classics, University of Cambridge, *The Forces of History*. For information, write to the Department of Continuing Education in Medicine, University of California Medical Center, San Francisco 22.

CANADIAN DOCTORS JOIN
CONGO TEAM

Dr. Raymond Allard of Montreal has arrived in the Congo to join the Canadian Red Cross team of doctors and nurses. A native of Quebec City, Dr. Allard studied at Laval and McGill Universities. He has been granted leave of absence from Royal Victoria Hospital in order to undertake this assignment. The Canadian Red Cross Society obtained Dr. Allard's services in response to an urgent request from the World Health Organization, through the International Committee of the Red Cross, for a specialist in anesthesia.

On October 27, Dr. G. E. Stoker, medical director of the Toronto depot of the Canadian Red Cross blood transfusion service, left Canada for duty in the Congo. His services, like those of Dr. Allard, are being made available in response to a request from the League of Red Cross Societies and the World Health Organization. Dr. Stoker will be in charge of the emergency blood transfusion service established by the International Red Cross at Leopoldville, and will direct this work for a period of three months. Dr. Stoker, a native of Ireland, joined the Canadian Red Cross in 1959 after service in the Royal Army Medical Corps, general practice in New Zealand, and other assignments in Poland, the British West Indies and Northern Canada.

CURRENT MORTALITY
TRENDS

Mortality among the Metropolitan Life Insurance Company's millions of industrial policyholders was 3% higher in the first half of 1960 than in the corresponding

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the new
high peak
oral synthetic*
penicillins

Provides more efficient absorption than any other form of penicillin.†

125 mg. (200,000 I.U.) tablets

250 mg. (400,000 I.U.) tablets

Pediatric Solution—60cc.—

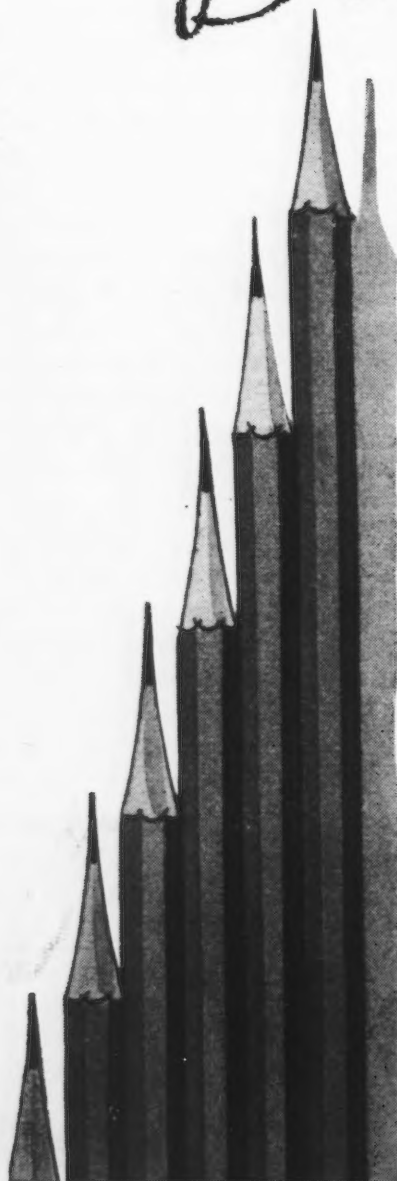
125 mg. per teaspoonful (5cc.)



*Potassium (a-phenoxy-ethyl) Penicillin (BRL-152)
†Knudsen, E. T. and Robinson, G. N.
Lancet, ii: 1105, 1959

**BEECHAM RESEARCH
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period of 1959. The actual death rate was 7.2 per 1000, compared with 7.0 in 1959. The increase reflects largely the relatively high death rates in February and March, when they were 11 and 15%, respectively, above those for the same months in 1959.

Pneumonia and influenza recorded a death rate about one-third above that for the first half of last year, the rate of 28.3 per 100,000 policyholders being the highest in more than a decade. In February and March the mortality from these diseases was almost twice that of a year ago.

Diseases of the heart, arteries, and kidneys, which account for more than half of the total mortality among these insured persons, recorded a moderately increased death rate, 386.3 compared with 378.4 per 100,000 for the January-June period of 1959. There also was a small increase in the cancer death rate, from 144.9 to 146.7 per 100,000.

The tuberculosis death rate increased fractionally from the all-time low of 5.8 per 100,000 recorded in the first half of last year. The current rate — 6.2 per 100,000 — is still about one-fourth below that of five years ago. — *Metropolitan Information Service.*

BRITAIN'S HOSPITALS OF THE FUTURE ON DISPLAY

An unusual opportunity to examine in detail the latest trends in hospital design and planning was presented to visitors at the London Nursing Exhibition, opened by H.R.H. the Duchess of Kent at Seymour Hall, in October of this year.

Nineteen large scale models and an extensive collection of photographs and drawings of British hospitals of the future formed the main feature of the Exhibition, taking up the entire north gallery of the hall and part of the stage. The models, which were all of buildings being erected, in the advanced planning stage, or under reconstruction, were valued at over £10,000. They included the following hospitals: Sheffield Teaching Hospital; St. Thomas' Hospital, London; Western General Hospital, Hull; Hillingdon Hospital; Kettering Hospital; St. John's Hospital, Stone; Welwyn/Hatfield Hospital; Harlow Hospital; Westminster Hos-

pital; Truro Hospital; St. Austell, Cornwall; The London Hospital; Peterborough Hospital, Nurses' Home; Hammersmith Hospital, London; Princess Margaret Hospital, Swindon; Wexham Park Hospital, Slough; Crawley Hospital; and Lambeth Hospital, London.

The Government's hospital building program has been increased from £11 million in 1955-1956 to nearly £35 million in 1961-1962, although the expenditure

recommended by two B.M.A. experts who produced a report on hospital building last year was £750 million. Since 1955 nearly 180 major building projects have been announced, creating an unprecedented challenge to British architects. The models on show in this remarkable display at the London Nursing Exhibition shed some light on the way they have risen to that challenge.

(Continued on page 48)

ZENITH

offers your patients unparalleled
Hearing Aid appearance
and performance...



If cosmetic effect is important to your patient — the Gold Seal Medallion may best meet his need. Smartly styled, it combines the striking beauty and slenderness of modern eyeglasses with superb performance. The Medallion is *one third smaller* than the previous Zenith model—yet it is brilliantly engineered to offer all the advantages of famous Zenith "Living Sound" quality!

If superior performance is important to your patient — the Gold Seal Extended Range is especially engineered for him. With a response range that is almost *twice as broad*

as the former Zenith conventional transistor hearing aid, the Extended Range gives remarkable reception. It has virtually eliminated background noises and distortion. In actual Zenith tests, it has proven its ability to improve the hearing of 9 out of 10 hearing aid users!

For fabulous performance, for inconspicuous beauty, these two examples of Zenith progress demonstrate again the leadership that Zenith alone enjoys.

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WALLACE LABORATORIES, TORONTO, ONTARIO

MEDICAL NEWS in brief
(Continued from page 45)

THE CUTTER LABORATORIES POLIOMYELITIS VACCINE CASE

Despite an original jury finding that Cutter Laboratories was not negligent in producing or selling early lots of the Salk poliomyelitis vaccine, damage awards against the pharmaceutical company have been upheld through refusal of the California State Supreme Court to hear Cutter's appeal from an adverse state appellate court ruling.

All parties to the action agreed that the case is of fundamental importance, involving risks and liabilities of the pharmaceutical industry, pharmacists, and the medical profession as a whole. An appeal to the U.S. Supreme Court is being considered.

The case arose in April 1955, with the first release for clinical use of the vaccine developed by Dr. Jonas Salk. Cutter Laboratories was one of four companies that had been requested to produce the vaccine. Of the first 13 lots released as having reached required potency standards, Cutter had produced six. More than 400,000 persons were then inoculated with this Cutter vaccine, and among them 79 cases of poliomyelitis were reported, some within the first week of use of the vaccine.

Damage suits were filed against Cutter Laboratories with the claim that the vaccine had itself caused the disease. The present California court action came in two of those suits.

Friend-of-the-court briefs had been filed on behalf of Cutter by the American College of Physicians, the American Pharmaceutical Association, and the Pharmaceutical Manufacturers Association.

The original jury, which held for the plaintiffs, said in its decision, "The jury took as first consideration the matter of negligence, and from a preponderance of the evidence concluded that the defendant, Cutter Laboratories, was not negligent either directly or by inference in producing and selling poliomyelitis vaccine under conditions prevailing at the time of the Cutter incident."

Cutter's defence had been that it scrupulously followed regulations and specifications of the U.S.

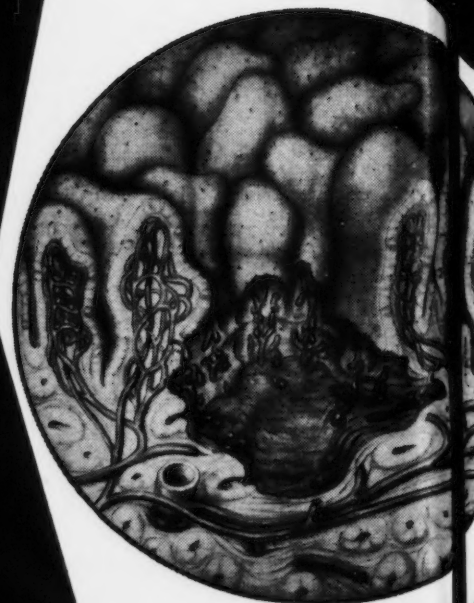
Public Health Service. The defence argument, concurred in by both physician and pharmaceutical organizations, held that risk may be inherent in the use of a new biological and that liability in the present case might well inhibit future research, as well as raising a series of questions about risks inherent in clinical practice of medicine.

The jury's ruling was based on compliance with instructions by

the trial judge to the effect that "if you find from the evidence in this case that the vaccine administered to the plaintiffs was Cutter vaccine, and that it contained live virus, and that live virus in said vaccine was a proximate cause of plaintiffs' injuries, then said vaccine was not of merchantable quality."

On appeal, a higher court also ruled that a breach of warranty had been committed. It applied an earlier California ruling involving

strengthens
fragile capillaries
in
internal
bleeding



capillary hemorrhage
in duodenal ulcer

... associated with abnormal capillary
permeability and fragility in

peptic ulcer
ulcerative colitis
chronic nosebleed
purpura
(nonthrombocytopenic)
hemorrhagic cystitis
ecchymoses
menorrhagia
habitual and
threatened abortion

foods. Lawyers for Cutter, in their brief to the California Supreme Court, said this ruling "treats the case as if it involved maggots, which any eye can see and diligence can prevent, in a sandwich, a kind of product commonplace to laymen, not involving exploration into the unknown for the betterment of man's welfare."

The brief for the defence also said that "the potency prescribed by the Government was greater

than was later discovered could be attained with perfect safety" and also that "science erred in supposing that it possessed an adequate testing procedure when in fact none yet existed."

The defence brief noted that the report on the incident by the U.S. Surgeon General said, "Events which in the traditional course of scientific development would have covered years were telescoped into months and, as a result, both suc-

cesses and failures have been magnified."

The appeals court, however, ruled that none of the circumstances in the case constituted "a disclaimer that the vaccine is fit for its purpose and is merchantable."

Dr. Robert K. Cutter, president of the pharmaceutical concern, commented after the Supreme Court refused to hear the appeal, "In spite of the fact that this was a preparation produced under licence, regulation, and the exact specification of the U.S. Government, and the jury found that we faithfully followed every safeguard, we are held responsible. It seems most unjust. Our further steps have not yet been formulated."—*Medical Tribune*, October 3, 1960.

CURRENT STATISTICS ON TRAFFIC ACCIDENTS IN CANADA

The number of persons killed in motor vehicle traffic accidents on Canada's streets and highways in this year's second quarter fell to 717 from 730 in the comparable 1959 quarter, bringing the January-June total to 1173 as compared with 1195 in the first half of last year. Persons injured in the quarter numbered 21,122 as compared to 19,785 a year earlier, placing the half-year total at 37,304 against 34,521 a year ago. These fatalities and injuries resulted from 51,081 accidents in the quarter versus 47,794, and 113,778 accidents in the half year against 109,188.

The death toll in this year's second quarter was higher than a year earlier in Alberta, Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick. The toll was lower in the Yukon and Northwest Territories. Fatalities in the second quarter, by region, were: Newfoundland, 10 (7 a year earlier); Prince Edward Island, 4 (2); Nova Scotia, 30 (21); New Brunswick, 49 (23); Quebec 208 (216); Ontario, 227 (238); Manitoba, 25 (32); Saskatchewan, 30 (48); Alberta, 72 (54); British Columbia, 61 (86); and the Yukon and Northwest Territories, 1 (3).

Fatalities in motor vehicle traffic accidents on Canada's streets and highways in August this year numbered 374, compared with 368 in the corresponding month last

(Continued on page 51)

duo- CVP

(double strength CVP)

water-soluble citrus bioflavonoid
compound (200 mg.) with ascorbic acid
(200 mg.), per capsule

Duo-C.V.P. helps diminish increased capillary permeability, fragility, and resultant bleeding by acting to maintain the integrity of the intercellular ground substance (cement) of capillary walls. Duo-C.V.P. is the original and exclusive water-soluble citrus bioflavonoid complex. Readily absorbed and utilized, duo-C.V.P. is relatively free (due to special processing) of hesperidin, naringin and other comparatively insoluble and inactive flavonoids found in citrus.

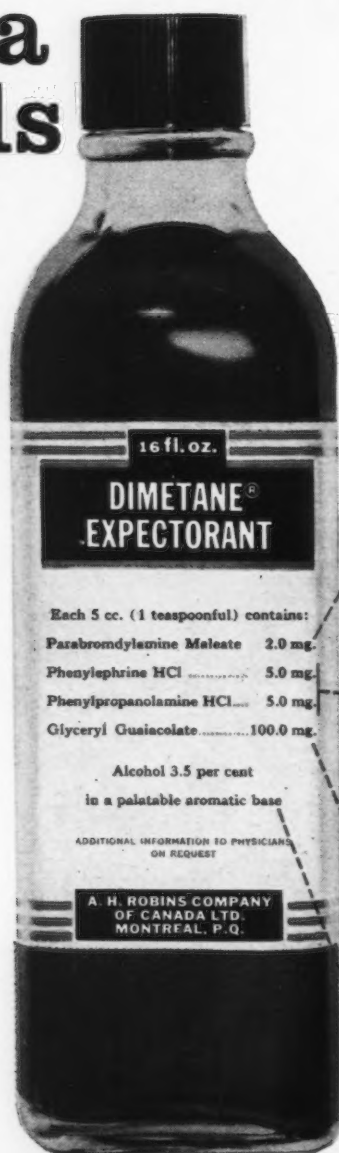
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with added dihydrocodeinone
1.8 mg./5 cc. when
additional cough suppressant
action is needed

MEDICAL NEWS in brief
(Continued from page 49)

year, according to a special D.B.S. statement. The death toll was higher in August this year than last in Newfoundland, Prince Edward Island, Nova Scotia, Alberta and British Columbia, unchanged in New Brunswick and Ontario, and lower in the remaining areas.

August death toll by areas was as follows: Newfoundland, 6 (2 in August 1959); Prince Edward Island, 4 (1); Nova Scotia, 22 (17); New Brunswick, 14 (14); Quebec, 91 (92); Ontario, 129 (129); Manitoba, 14 (20); Saskatchewan, 17 (23); Alberta, 30 (25); British Columbia, 46 (43); and the Yukon and Northwest Territories, 1 (2).—*Dominion Bureau of Statistics Weekly Bulletin.*

**NORTH AMERICAN
ASSOCIATION OF
ALCOHOL PROGRAMS,
ELEVENTH ANNUAL
MEETING**

The North American Association of Alcoholism Programs recently concluded its eleventh Annual Conference, which was held at the Banff School of Fine Arts and Centre for Continuing Education. The Alcoholism Foundation of Alberta was host agency with J. George Strachan, Executive Director of the Alberta Foundation, as Program Chairman.

The theme of this conference was centred about administration and the problems of training and developing personnel within the agencies. The expansion of resources within every community, or existing agencies, and of participation of business and industry to produce greater co-operation in accepting responsibility for coping with the illness of alcoholism, was of central concern to the conference.

One hundred and twenty persons participated in the Conference, including administrators of governmental alcoholism programs, members of their Boards and staff. Twenty-seven States and five Provinces were represented. Guests included visitors from Hawaii and Finland. The professional staff of Canadian clinics included physicians, social workers and psychologists.

The program was highlighted by presentations from other organi-

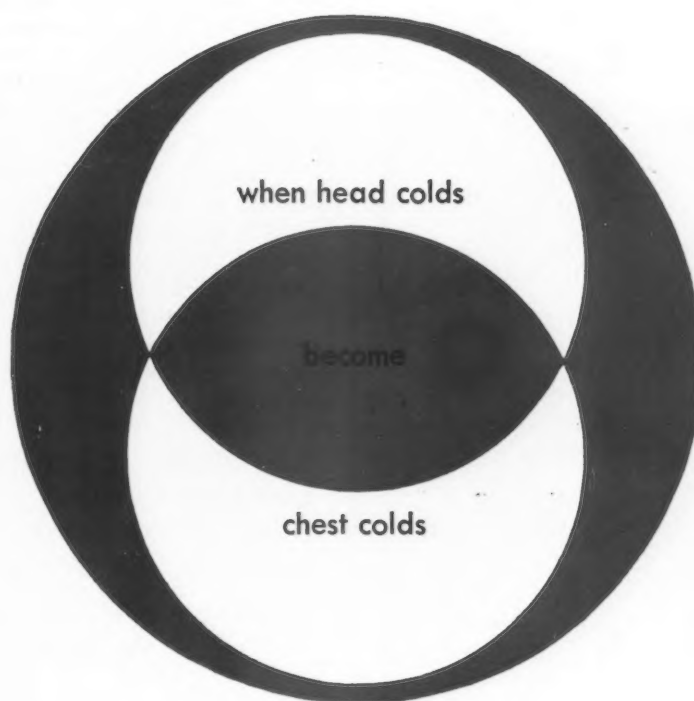
zations in the field of alcoholism. The opening presentation was by Nevitt Sanford, Professor of Psychology at the University of California. Professor Sanford is the newly appointed Director of the Co-operative Commission on Alcoholism, an important international organization newly set up to carry out exhaustive study of the extent of the alcoholism problem and the facilities for research and management that exist on the North American continent.

Bill W., co-founder of Alcoholics

Anonymous, reviewed the growth of that fellowship and paid tribute to the many outside friends of A.A.

R. Brinkley Smithers, president of the National Council on Alcoholism, Inc., and president of the Christopher D. Smithers Foundation of New York, in reviewing the growth and activity of voluntary agencies, stressed the need for joint relationship and activities between governmental and voluntary groups.

(Continued on page 52)



Novahistine-DH
LIQUID

controls cough spasm and decongests air passages. Fortified Novahistine Elixir, combined with dihydrocodeinone relieves respiratory congestion and controls useless, exhausting cough. And the delicious grape flavor of Novahistine-DH **appeals to both adults and children.**

Each 5 cc. teaspoonful contains: phenylephrine HCl, 10 mg.; pheniramine maleate 12.5 mg.; dihydrocodeinone bitartrate, 1.66 mg.; chloroform, approx. 13.5 mg.; and l-menthol, 1 mg. For convenience your prescription may be placed with your patient's pharmacist by telephone.



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MEDICAL NEWS in brief

(Continued from page 51)

Dr. Marvin A. Block, B.S., chairman of the Committee on Alcoholism of the Council on Mental Health of the American Medical Association, Buffalo, N.Y., outlined the responsibility of the medical profession in the work of both voluntary and governmental agencies.

The Hon. J. Donovan Ross, M.D., Minister of Health of the province of Alberta, was guest speaker at the banquet. He stressed the need of integrating government support with that of the professions and interested persons within any community so as to utilize all available resources in dealing with this immense medical and social disorder.

The officers elected for the next two years are: Dr. John R. Philp, Berkeley, California — President; J. George Strachan, Edmonton, Alberta — First Vice President; Norbert L. Kelly, Raleigh, North Carolina — Second Vice President; George C. Dimas, Portland, Oregon — Secretary-Treasurer; H. David Archibald, Toronto, Ontario — Past President.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY: ELECTION OF OFFICERS

Dr. Lawrence R. Boies, professor and head of the Department of Otolaryngology of the University of Minnesota, Minneapolis, was named president-elect of the American Academy of Ophthalmology and Otolaryngology, at the 65th annual business meeting Thursday evening, October 13, 1960, at the Palmer House, Chicago. Dr. Boies will take office in January 1962, succeeding Dr. Dohrmann K. Pischel, San Francisco, who is now president-elect and will become president in January 1961. Born in Renville, Minnesota, Dr. Boies received a Master of Arts from the University of Wisconsin in 1923 and a Doctor of Medicine from Columbia University in 1926. He did postgraduate work at Massachusetts Eye and Ear Infirmary. In 1942, he assumed his present position at the University of Minnesota. Dr. Boies is a member of the American Otolaryngological Society; American Laryngological,

Rhinological and Otolaryngological Society; American Laryngological Association; American Bronchological and Esophagological Association. He has been a Fellow of the American Academy of Ophthalmology and Otolaryngology since 1936.

Dr. Frederick F. Hill of Waterville, Maine, was elected first vice-president; Dr. Maynard C. Wheeler of New York, second vice-president; Dr. Leland G. Hunnicutt of Pasadena, California, third vice-president.

UNIVERSITY OF TORONTO RHEUMATIC DISEASE STUDY UNIT

A special unit for the study of arthritis and other rheumatic diseases to enable the University to expand its activities in arthritis research and teaching is being established by the University of Toronto, it was announced recently by President Claude Bissell. "Inauguration of the Rheumatic Disease Unit has been made possible through grants from The Canadian Arthritis and Rheumatism Society totalling \$125,000 during the next five years," Dr. Bissell said, pointing out that arthritis and the other rheumatic diseases are major problems in medicine today.

As part of the University's Department of Medicine, the new Rheumatic Disease Unit will be directed by Dr. Wallace Graham, who is a member of the University's teaching staff at the Toronto General Hospital and who has been director of the Arthritis Unit at Sunnybrook Hospital for the past 15 years. Dr. Graham has been promoted to Associate Professor of Medicine.

The new Rheumatic Disease Unit will use the facilities of the Toronto General Hospital and the Queen Elizabeth Hospital. Its administrative centre will be at the Toronto General Hospital.

While the basic requirements will be provided through The Canadian Arthritis and Rheumatism Society's grant, Dr. Wallace Graham emphasized that the Unit hopes to extend its research activity through additional grants from the National Research Council, Department of National Health and Welfare, and similar bodies. The rate of its growth will also be related to the expansion of the University's proposed new laboratories for general medical science.

PROVINCIAL NEWS

BRITISH COLUMBIA

The University of British Columbia now provides the most comprehensive medical coverage for students in the British Commonwealth, according to a statement made by Dr. Kenneth Young, Director of the University's Health Services, who announced a plan to provide prepaid surgical and medical care for all students, at a cost of \$10.00 per student per annum.

This has been arranged through Medical Services Incorporated (MSI). A similar plan has been arranged for the students of Victoria University, formerly Victoria College.

ALBERTA

Dates have been set for the 7th Annual Clinical Meeting of the College of General Practice, Alberta Division, and the Section of General Practice, C.M.A., Alberta Division. This meeting, which is becoming increasingly popular, will be held in the Cascade Hall at Banff on January 25, 26 and 27, 1961. The program is varied, with business and social features. Headline speakers are Dr. Douglas G. Cameron, Professor of Medicine, McGill University, and Dr. P. E. Burnats, Chief, Surgical Division, the Mayo Clinic; the remaining speakers are from Alberta. The subjects are selected for their value to those engaged in general practice. The study credit rating is 12½ hours.

The business meetings of both the Alberta Chapter of the College of General Practice and the Alberta Division of the Section of General Practice are planned for the afternoon of Thursday, January 26.

On the social side there will be a get-together on Tuesday evening, January 24, an informal cocktail party on Wednesday, and the annual reception, banquet and dance on Friday.

The ladies are invited to all noon luncheons, the speakers and subjects being of equal interest to both sexes. Apart from the luncheon, the keynote of the ladies' program is informality and relaxation.

Requests for accommodation should be addressed to Mr. J. J. MacConville, Mount Royal Hotel, Banff, Alberta. Expenses are tax deductible.

The venue and the excellence of the programs make for the high attendance at these meetings.

W. B. PARSONS

SASKATCHEWAN

For the past 10 years, the medical staff of the Saskatoon City Hospital has had a system of ward monitors. The function of these monitors is, in brief, to curtail unnecessary wastage of hospital beds; to enquire at least once weekly as to progress of each patient in hospital; to enquire as to delay in procuring laboratory, diagnostic or therapeutic procedures; to enquire as to delay in surgical procedures beyond 72 hours after admission; to report ward conditions once weekly to senior monitors; to enquire into and report on urgent and emergency bookings by staff members; and to recommend and receive suggestions for more effective use of hospital beds. The ward monitors may request the attending doctor to arrange the discharge of a patient considered ready for discharge and report such cases to the senior monitors.

In the system presently in vogue two senior monitors are assigned with a ward monitor for each separate ward.

This system has worked well and has proved to be most efficient. Similar systems are in use in other Saskatchewan hospitals.

While a first-year medical student at the University of Saskatchewan, Miss Barbara Unger was awarded the Medical Assistantship granted by the Saskatchewan Division of the Canadian Cancer Society. She is the daughter of Dr. F. J. Unger of Melfort, Saskatchewan.

Dr. G. P. Whyte of Swift Current was elected President of the Canadian Dental Association at the Association's 59th Annual Meeting in the Château Laurier, Ottawa.

At least 2300 people were tested for glaucoma and many were turned away when a glaucoma clinic was held recently in Saskatoon. Some 140 suspected victims of the disease were discovered.

G. W. PEACOCK

ONTARIO

Professor E. A. Asratyan of the Academy of Sciences, Moscow, addressed the Physiological Society of the University of Toronto on October 27. His subject was "The Effect of Decortication of the Brain on the Nervous and Humoral Regulation of the Function of the Organism".

The 170 units of the Women's Hospital Auxiliaries of Ontario raised almost \$900,000 last year. About half of this amount was expended on hospital equipment, furnishings and buildings. About \$20,000 was spent for the comfort of the nurses and \$25,000 for scholarships, bursaries, prizes, loans and emergency funds for nurses-in-training.

The areas of volunteer service in hospitals are growing rapidly. Included among their functions are visitor control, visitor information and accident committees. The New Liskeard and District Hospital has established a committee trained by the superintendent of nurses to prepare articles for sterilization in the central supply department. Trenton Memorial Hospital has volunteers working in its pharmacy, records, central supply and pediatric departments.

The Toronto General Hospital Women's Auxiliary has 21 interpreters, 11 of whom are on duty each week to assist foreign patients.

The Ladies' Auxiliary, Grace Hospital, Windsor, have purchased an artificial kidney for the hospital at a cost of about \$1500.

Dr. J. G. Campbell, Windsor, has been honoured by Her Majesty the Queen, through her representative the Governor-General, who presented Dr. Campbell with the award of "Serving Brother Officer" in the St. John Ambulance Association.

(Continued on page 7)

over an 8-year span...

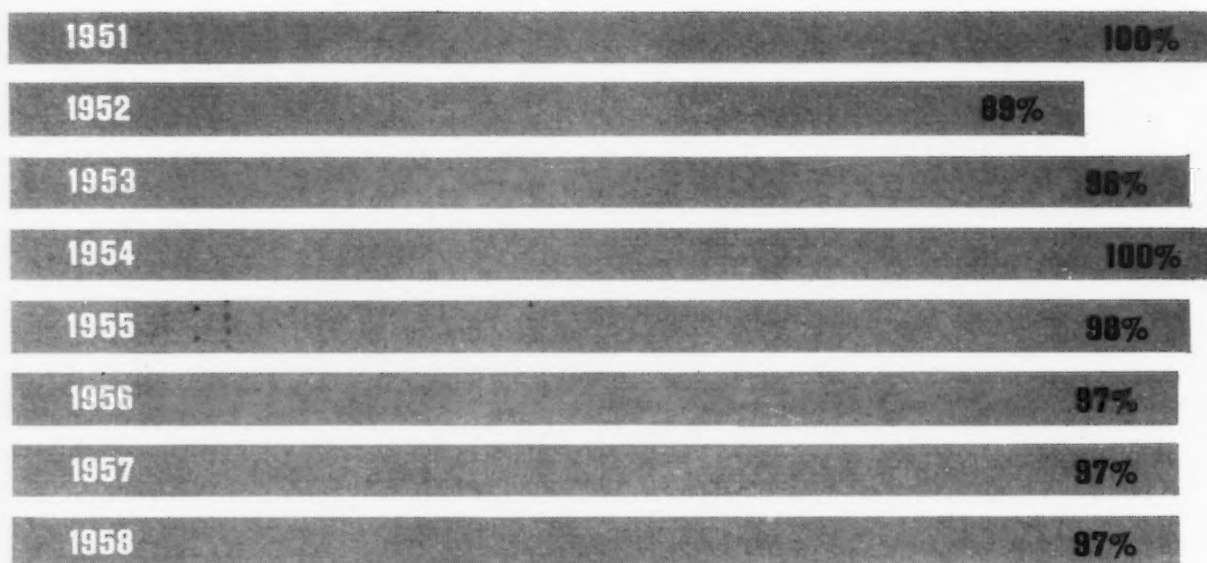
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*Adapted from Rebhan & Edwards¹

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(Continued from page 5)

William A. Hume, administrator of Orillia Soldiers Memorial Hospital, a panellist at the annual convention of the Ontario Hospital Association, said that there is a trend in modern society to look upon aged ill persons as nuisances who interfere with weekends, parties, children and the routine of work.

Sam Ruth, administrator of Baycrest Hospital, Toronto, said that his hospital stimulates the early discharge of patients by emphasizing rehabilitation and by planting in the patient's mind the idea of improvement. He felt that the word "chronic" should be discarded.

Dr. Joseph Berkeley, Windsor, a specialist in physical medicine, stressed the need of a planned program of physical and occupational therapy as a morale builder, even among the bedridden.

Mrs. John A. Aylen, Ottawa, chairman of the board of directors, Ottawa Civic Hospital, has been elected president of the Ontario Hospital Association.

LILLIAN A. CHASE

The Hon. Matthew B. Dymond, Minister of Health for the Province of Ontario, has announced the appointment of Dr. George Dewan as Director of the Toronto Psychiatric Hospital. Dr. Dewan succeeds Dr. Aldwyn B. Stokes, Professor of Psychiatry at the University of Toronto, who has been Director of the hospital since 1947. In order that he might assume full-time responsibility as Professor and Head of the Department of Psychiatry, Dr. Stokes had asked to be relieved of the responsibility for the administration of the Toronto Psychiatric Hospital.

"The work at the hospital has been expanding rapidly," said Dr. Dymond, "and now, in addition to the inpatient service, includes extensive outpatient departments for adult psychiatry, children's psychiatry and forensic psychiatry. This expansion necessitates the appointment of a full-time director to administer the functions of the hospital."

Dr. Dewan was born in London, Ontario, in 1907. He graduated with an honour Science degree from the University of Western Ontario in 1929, and qualified for his M.D. at the same university in 1932. He took a Master's degree in psychology at the University of Toronto in 1935 and obtained his Ph.D. in biochemistry from Cambridge University in 1939, the Diploma in Psychological Medicine in London, England, and the Diploma in Psychiatry at the University of Toronto. He became a Fellow of the Royal College of Physicians and Surgeons of Canada in 1950. He has taken extensive postgraduate training in psychiatry at the Toronto Psychiatric Hospital, the University of Toronto, Henry Phipps Psychiatric Clinic, Johns Hopkins University, and Maudsley Hospital, London, England, as well as extensive training in neurology at Queen Square, London, England.

He served during the war as a consultant psychiatrist with the R.C.A.M.C. and has been Director of the Out-Patient Department of the Toronto Psychiatric Hospital since 1946, and Associate Professor of Psychiatry at the University of Toronto since 1951.

He holds membership in at least 11 professional societies and, as well, is a member of the council of

the Royal College of Physicians and Surgeons of Canada, and President-elect of the Canadian Psychiatric Association. He has been the author of numerous papers in psychiatry and biochemistry.

QUEBEC

The Association of Medical Bacteriologists of the Province of Quebec has prepared a brief concerning the practice of medical bacteriology and its relationship to the forthcoming Hospital and Diagnostic Services Act in this province. The summary and recommendations contained in this brief are as follows:

"It is the wish of the Association of Medical Bacteriologists of the Province of Quebec to provide for all citizens of the Province the best possible bacteriology service for the diagnosis, treatment and prevention of infectious diseases. The Association also wishes to co-operate in every way possible in the implementation of a Hospital and Diagnostic Services Act in the Province. In this connection we make the following recommendations:

"1. Every university or teaching hospital in the province qualified for postgraduate training in medicine or surgery, and every general hospital of importance, must be assured of the services of a full-time certified medical bacteriologist. This should be a requirement for hospital accreditation.

"2. Every hospital of 300 or more beds must also be assured of the services of a qualified medical bacteriologist at least part-time.

"3. Remuneration must be established on the same basis and at the same rate as that of other laboratory physicians.

"It is obvious from the evidence that the establishment of a hospital insurance plan in the province will greatly increase the work of medical and technical personnel. For this reason the Association believes that before considering the creation of new diagnostic centres, the maximum possible use must be made of already existing hospital and private laboratories. It also believes strongly that all such laboratories must be under the immediate direction of certified medical bacteriologists.

"The Association strongly recommends that the director of a diagnostic bacteriology laboratory should have control of his personnel and of his own budget, in order to provide the best possible service through first-class technicians.

"Since the control and direction of the diagnostic bacteriology laboratory, and also the interpretation of tests and analyses, are medical acts, the Association firmly believes that the certified medical bacteriologist has the right to a just professional remuneration by virtue of his medical specialty according to a suggested method which must be established, and that he must not be considered as an employee of, or the means by which a hospital or institution offers its laboratory services.

"The professional remunerations paid by hospital administration are still insufficient and inadequate, considering the services rendered by medical bacteriologists to the medical profession and to patients. It is regretted that such a situation exists, since it deters many young physicians from entering such a career.

"It is important to view this problem clearly if the entire population is to be assured of the best possible laboratory services."

ABSTRACTS

MEDICINE

Diagnosis and Treatment of Trichomonal Urethritis in Men.

R. D. CATTERALL: *Brit. M. J.*, 2: 113, 1960.

Since 1894 when *Trichomonas vaginalis* was first reported to be present in the male genital tract, many such instances and series of cases have been published but until recently the recorded incidence of infection in men has been low. With improved techniques and increasing interest in non-gonococcal urethritis in recent years, infestation with this parasite appears to be more common than previously supposed. There seems little doubt that it is one of the causes of male genital infection though its precise role in the etiology of non-gonococcal urethritis is not yet clear. The author describes the results of a study of 126 men with trichomonal urethritis seen at the Whitechapel Clinic of The London Hospital during the three years between January 1956 and January 1959. The use of fresh urethral scrapings and urethral cultures was recommended for diagnosis and follow-up, and the diagnostic value of an early morning smear and culture was stressed. Symptoms were not uncommonly mild or absent. Urethral discharge and itching "inside" the penis were frequent complaints. Dysuria, frequency, hemorrhagic discharge, hematuria and painful swelling of the epididymis occurred in a small number. The most satisfactory treatment in the author's opinion consisted of urethro-vesical irrigations with weak solutions of potassium permanganate, oxycyanide of mercury or dequalinium chloride. Relapses or repeated reinfections suggest the possibility of urethral stricture and are an indication for urethroscopy. It was considered that more satisfactory treatment must await the discovery of a systemic trichomonocidal substance which would be effective when administered by mouth or by injection. To date all systemically administered antibiotic and chemotherapeutic agents have been disappointing and inconsistent in their effects on this disorder.

Therapy of Sexual Over-Excitability with Pineal Gland Extract.

R. HOFSTÄTTER: *Wien. med. Wchnschr.*, 110: 684, 1960.

Since 1916 the author's experience in this field has extended to the treatment of 465 patients with pineal gland extract. The preparation used in most cases was a 5 c.c. ampoule containing 0.1 g. of fresh gland per c.c. Daily injections, first with 1 c.c. and later with 5 c.c. every second or third day, were given intramuscularly. Of 209 cases of hyperlibido in young girls, adult females, and post-climacteric as well as post-castration women treated in this manner, good results were obtained in 132 and temporary or "possibly good results" in another 36. Forty-one patients were therapeutic failures.

The belief that antagonism exists between the anterior pituitary and the pineal gland has been expressed by various authors in the past and is supported by the experience of the writer. Its antagonistic effect is not directed against the gonads themselves, but against the pituitary. In carcinoma, higher dosage of pineal extract or pineal transplants has a suppressive effect upon growth.

W. GROBIN

Chromosome Abnormalities in Certain Diseases of Man.

M. A. FERGUSON-SMITH AND A. W. JOHNSTON: *Ann. Int. Med.*, 53: 359, 1960.

The events leading to the establishment of a diploid number of 46 chromosomes and an XX/XY sex chromosome pattern are reviewed. Abnormalities in chromosome number have now been reported in mongolism and in some of the sex anomalies, particularly chromatin-positive Klinefelter's syndrome and chromatin-negative Turner's syndrome. Two male patients with an XX/XY constitution are also discussed. The findings in leukemia are reviewed.

Non-disjunction is suggested as the mechanism by which these abnormalities are produced.

ROSS MITCHELL

Nickel Sensitivity as a Cause of Infusion Reactions.

J. C. STODDART: *Lancet*, 2: 741, 1960.

Many of the cannulae used for routine intravenous infusions are made of nickel or of a nickel-containing alloy. Though large numbers of infusions are given via such cannulae every day, no previous case of nickel dermatitis from this cause has been described. That this type of reaction can occur was evidenced by the observation of skin eruption in two patients, associated with intravenous infusions, within a three-month period in one hospital. One of these patients also experienced an alarming anaphylactoid reaction. As nickel sensitivity is relatively common, it is suggested that a proportion of hitherto unexplained infusion reactions may be due to nickel cannulae which may produce manifestations of either the immediate or delayed type of hypersensitivity.

Cerebral Vascular Spasm as a Cause of Cerebral Accidents.

H. KRAYENBÜHL: *Schweiz. med. Wchnschr.*, 90: 961, 1960.


Although the author agrees in general with trends evidenced in recent literature expressing doubts as to the importance of vascular spasm *per se* as a frequent cause of organic disturbances of the brain, he reports a number of instances in which this phenomenon apparently occurred. In some of these, the angiospasm which was responsible for marked paresis followed operative interference with the brain, but in one patient, a 14-year-old boy, the reason for the angiospasm was obscure. This boy developed sudden hemiparesis which was associated with narrowing of the right anterior cerebral artery as demonstrated by angiography, and which gradually cleared during the following few months. A second angiogram a year later still showed narrowing of the same cerebral artery, which, however, was then presumed to be due to secondary organic changes in the vessel wall.

The author considers that such organic changes may follow prolonged arteriospasm, but assumes that in the majority of cases the angiospasm developed on the basis of primary arterial changes. The tendency to spasm is apparently particularly marked in the large arteries, the internal carotid, the anterior cerebral and the middle cerebral arteries, especially if a saccular aneurysm is present in any of these vessels.

Angiography is necessary for the establishment of the diagnosis in such cases.

W. GROBIN

(Continued on page 10)



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(Continued from page 8)

SURGERY**Esophageal Stricture Secondary to Hiatus Hernia in the Aged.**E. M. NANSON: *Canad. J. Surg.*, 3: 286, 1960.

From the history of seven elderly patients and a woman aged 54 studied at the University Hospital, Saskatoon, the author draws attention to the importance of early differentiation of this condition from neoplasia of the lower esophagus. The inflammatory stricture may develop insidiously in persons over the age of 60 years and may closely mimic carcinoma. There may be merely a history of progressive dysphagia over a few weeks or months without any significant antecedent history of esophageal reflex indicative of hiatus hernia.

The important step in the diagnosis is to ensure that the stricture has been dilated sufficiently to pass biopsy forceps through it, so that truly representative tissue can be obtained from within or below the stricture. If the histological picture is that of gastric mucosa and has been taken from above the diaphragm, the diagnosis of hiatus hernia is proved.

Various surgical procedures may be considered for the good-risk patient but for older persons, dilatation of 30F to 40F can render a number of these patients symptom-free, sometimes after only one or two dilatations.

A. M. DAVIDSON

Diabetic Problems in Surgery.H. U. FREHNER, T. WEGMANN, J. OBERHOLZER AND F. KERN: *Schweiz. med. Wchnschr.*, 90: 978, 1960 (German).

The following possibilities must be considered in the case of a surgical patient with diabetes: (1) No surgical disease may be present, the patient's symptoms being the result of diabetic neuropathy or manifestations of incipient coma simulating an acute abdomen. (2) The patient may have an acute organic process such as acute pancreatitis which is responsible for the diabetic state. (3) The diabetic patient may require surgical treatment of conditions associated with his disease. Most frequently these are foot problems or a wide variety of infections. With this group of patients it is important that each surgeon should develop a systematic approach to the problems of surgical timing and selection of operative procedures and should adhere to the approach to these problems at which he is most proficient.

The details of a standardized program of preoperative and postoperative care of the diabetic patient are described. Among the features of this program, the use of a high caloric diet preoperatively, the provision of adequate insulin requirements, and the administration of intravenous fructose infusions are stressed.

The administration of fructose is said to have reduced insulin requirements and thus to have minimized the risk of hypoglycemia. The team approach to problems of the diabetic patient who is undergoing routine surgery has been remarkably successful in the experience of this group. They also describe their approach to emergency surgery for the patient with diabetic acidosis and/or coma. Of their 84 surgical patients, 68 were subjected to operation; 42 showed no change in their metabolic disorder, while 22 had a moderate and 20 a significant aggravation of their diabetic state.

W. GROBIN

Arteriovenous Anastomoses and Varicose Veins.J. A. GIVS: *A.M.A. Arch. Surg.*, 81: 299, 1960.

Careful histories were taken, and dissections were performed on 14 patients being operated upon for varicose veins. With the use of an operation microscope, arteriovenous anastomoses about 1 mm. in diameter were observed. These tiny shunts from which red arterial blood gushed into the opened veins were found in 15 of 24 sites inspected. The streams did not pulsate. It was also noted that in some patients with varicose veins, even with stasis ulcers, the valves of the saphenous vein were intact and appeared to function.

It is suggested that these arteriovenous anastomoses are concerned with the development of varicose veins.

BURNS PLEWES

The Flexure: Relationship of Bowel Angulation to Obstruction.W. R. GHENT: *Canad. J. Surg.*, 3: 303, 1960.

The author presents two cases of cecal perforation to illustrate the etiology, diagnosis and treatment of this catastrophe as a result of what would seem to be a definite clinical entity—the flexure syndrome. Both of these patients developed perforation eight and nine days respectively after injury which resulted in paralytic ileus. This complication characteristically occurs in such patients who have begun to recover sufficiently to have bowel sounds.

It is therefore suggested that, as a preventive measure in these cases, the Levin tube be left in place until the patient is passing flatus and/or feces. If this is not done, bowel contents will merely be forced into the adynamic segment because of the functional gradient from above downwards which exists in the gastrointestinal tract. As the cecum and ascending colon become heavier, hepatic (or splenic) angulation is accentuated owing to traction on the phrenicocolic ligaments.

If the diagnosis is made before rupture, and cecal distension is approaching the critical size (9 cm.) as demonstrated on roentgenograms, immediate laparotomy with division of the offending phrenicocolic ligaments, and cecostomy, is indicated to provide complete deflation. The same procedure is to be adopted if perforation occurs before diagnosis is established. In either case the author advocates suturing the bowel wall to the skin after providing a liberal stoma.

A. M. DAVIDSON

An Evaluation of the Transventricular Approach to the Aortic Valve.R. J. BAIRD AND W. G. BIGELOW: *Ann. Surg.*, 152: 58, 1960.

A study of 42 cases of pure aortic stenosis in adults, treated by transventricular dilatation at the Toronto General Hospital, was productive of better results than were expected. The use of cardiac bypass for most patients under the age of 60 permits the removal of calcium and the mobilization of cusps, and possibly leaflet or valve replacement. However, some patients have cardiac disease of a type which is amenable only to blind dilatation of stenosed valves. Closed methods of surgery with an acceptable mortality rate and good results are well worth pursuing while direct vision techniques and valve replacement are being developed.

BURNS PLEWES

(Continued on page 12)

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(Continued from page 10)

THERAPEUTICS

The Effects of Triparanol (MER/29) in Subjects with and without Coronary Artery Disease.W. HOLLANDER, A. V. CHOBANIAN AND R. W. WILKINS:
J. A. M. A., 174: 5, 1960.

In view of numerous recent clinical and experimental studies suggesting that alterations in cholesterol metabolism may play an important role in the genesis of atherosclerosis, an increasing number of cholesterol lowering measures are being studied. These include low fat diets and treatment with unsaturated fatty acids, estrogens, thyroid compounds, nicotinic acid and sitosterol. The manner in which most of these measures lower serum cholesterol has not been clearly established. The authors report their experience over a 19-month period with a new cholesterol lowering agent, triparanol (MER/29), in 89 subjects with or without coronary artery disease. Triparanol is a triphenylethylene derivative which resembles chlorotrianisene, a synthetic estrogen. Unlike the latter it has no apparent feminizing effects and therefore might be considered a non-feminizing estrogen. Triparanol, an inhibitor of cholesterol biosynthesis, significantly reduced the serum cholesterol in 71 of 89 subjects with and without hypercholesterolemia. In a maximally effective dose of 250 mg. daily it was well tolerated without serious side effects. The decrease in serum cholesterol averaged 45 mg. % and ranged from 20 to 110 mg. %. The ratio of serum cholesterol to serum phospholipid also was favourably influenced by therapy. Triparanol, as indicated by radioisotopic tracer studies, also appeared to reduce the total sterol and cholesterol content by decreasing cholesterol formation in the body.

The compound appeared to have an anti-anginal effect in 12 of 28 subjects and to improve the electrocardiographic responses to exercise in 3 of 11 subjects with angina pectoris. These effects were associated with a fall in serum cholesterol.

RADIOLOGY

Diagnosis of Aneurysms of the Hepatic and Splenic Arteries by Intravenous Abdominal Aortography.I. STEINBERG: *New England J. Med.*, 263: 341, 1960.

Contrast visualization of hepatic and splenic arteries is now generally recognized as the definitive way to establish the diagnosis of aneurysms of these arteries. The safe and practical method of intravenous abdominal aortography recently reported by Steinberg, Finby and Evans (*Am. J. Roentgenol.*, 82: 758, 1959) constitutes a milestone in development of techniques for diagnosis of such aneurysms. This method permits diagnosis without the complications of translumbar aortography and is likely, in future, to facilitate the discovery of an increasing number of abdominal, aortic, splenic and hepatic artery arteriosclerotic aneurysms before rupture, and at a time when they are amenable to curative surgical treatment which has less risk than that entailed in the danger of rupture.

The radiographic technique involves the rapid, simultaneous, bilateral intravenous injection of concentrated contrast medium, the speed of injection being facilitated by insertion of special 12-gauge needle stop-cock units and the use of 12-gauge, 50-ml. syringes. The simultaneous bilateral injection eliminates the factor of dilution by unopacified blood from the

opposite innominate vein when only one injection is made. This measure, combined with respiratory maneuvers to avoid the Valsalva phenomenon, inspiration and elevation of the arms, increases the bolus effect of the contrast substance in the circulation. Adding half a second to the predetermined circulation time and making a two-second radiographic exposure provides for regular visualization of the abdominal aorta and its branches.

PUBLIC HEALTH

Ten Years of Public Health Work in New China.T.-C. LI: *Chinese M. J.*, 79: 483, 1959. (Reproduced from *Bull. Hyg.*, 35: 530, 1960.)

Purported advances during the period since the Chinese Communist party came into power are summed up by the author. The general approach was to attack health problems in an "all out" fashion, to obtain greater, quicker, better and more economical results to build socialism. Disease prevention was a primary aim which was approached by a co-operative effort of medical personnel trained in western schools and the practitioners of Chinese "traditional medicine". Among the key tasks was the elimination of mosquitoes, flies, rats and grain-eating sparrows. Efforts to improve personal hygiene were aimed toward "health improvement and socialist construction". This report contains extensive claims. "Schistosomiasis has now been practically eradicated from 65% of once affected areas, malaria from 39% and kala-azar from 90%. Apart from the national minority areas, the whole country is now freed from the menace of such venereal diseases as symptomatic syphilis and acute gonorrhea." This theme is elaborated and supported by figures and information claimed to illustrate the growth of medical education and provision for the sick. Credit for the "prodigious changes in this short period" is given to the general acceptance of socialist ideas and to the party which introduced them.

Achievements in the Fight Against Parasitic Diseases in New China.T.-C. HOU, H.-L. CHUNG, L.-Y. HO AND H.-C. WENG:
Chinese M. J., 79: 493, 1959. (Reproduced from *Bull. Hyg.*, 35: 530, 1960.)

Epidemiological, clinical and therapeutic studies, and studies of preventive and curative measures conducted under the Communist regime in China are reviewed in this 27-page paper with 252 references. The great amount of survey work which was carried out is emphasized.

The improvement in the health conditions of the masses is attributed to the socialist approach to health problems. Much of the clinical work in diagnosis and treatment in recent years follows conventional lines but several traditional remedies, including areca nut, are given prominent mention. The attack on schistosomiasis has apparently been energetic and determined. "Such achievements in such a short period of time would be utterly impossible under the capitalist system. Eradication of the parasitic diseases in China (malaria, filariasis, kala-azar and hookworm infestation) is no longer in question." Such extravagant emphasis on politico-ideological aspects, so foreign to our own concept of the basic approach to scientific medicine, raises doubts as to the validity of the contents of papers such as this.